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For Discussion
Purposes Only

PROGRAM PLANNING - DEVELOPMENT - BUDGETING SERIES -- NO. 5

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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WHAT'S AHEAD FOR VOC. ED.

FEDERAL STATE LOCAL

SELECTED PRESENTATIONS FROM THE NATIONAL CONFERENCE ON PROGRAM PLANNING AND EVALUATION - March 12 - 14, Skyline Inn, Washington, D.C.
(Washington, D.C., March 12-14, [1969]).

PROGRAM
ACTION

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CONTENTS

Page

VOCATIONAL EDUCATION: FROM A WORLD OF STABILITY TO A WORLD OF CHANGE - Dr. Grant Venn, Associate Commissioner for Adult, Vocational, and Library Programs 1

STAFFING THE STATE DEPARTMENT TO MEET THE NEEDS OF VOCATIONAL EDUCATION -- John Beaumont, Chief, Special Services, Division of Vocational and Technical Education 7

EDUCATING THE PEOPLE WHO MAKE THE DECISIONS FOR EFFECTIVENESS IN MEETING THE PURPOSES OF VOCATIONAL EDUCATION -- Dr. Rupert Evans, Dean, College of Education, University of Illinois 16

PROGRAMMING, PLANNING, AND BUDGETING AS RELATED TO THE ROLE OF VOCATIONAL EDUCATION -- Dr. Alice M. Rivlin, Assistant Secretary for Planning and Evaluation, HEW 23

STANDARD TERMINOLOGY FOR LOCAL AND STATE SCHOOL SYSTEMS -- Dr. W. Dale Chismore, Terminology Compatability Branch, Division of Statistical Operations, National Center for Educational Statistics 30

APPLICATIONS OF PROGRAM BUDGETING TO LOCAL SCHOOL SYSTEMS; WITH IMPLICATIONS FOR PROGRAM PLANNING, BUDGETING AND EVALUATION AT LOCAL AND STATE LEVELS -- Dr. Thomas G. Fox, Brookings Economic Policy Fellow with HEW 38

COST/BENEFIT--COST/EFFECTIVENESS STUDIES -- Dr. Jacob Kaufman, Director, Institute for Research on Human Resources, The Pennsylvania State University 51

LOCAL SCHOOL PLANNING AND BUDGETING BY ACTIVITY -- Allen R. Lichtenberger, Chief, Terminology Compatability Branch, Division of Statistical Operations, NCS 59

PREPARING PERSONNEL FOR PROGRAM PLANNING AND BUDGETING -- William A. Medina, Chief, Resources Coordination Division, Bureau of Training, U.S. Civil Service Commission 66

TAXONOMY OF OCCUPATIONAL TITLES AND INSTRUCTIONAL PROGRAM -- Emanuel Weinstein, Occupational Analyst, Division of Vocational and Technical Education 75

VOCATIONAL EDUCATION: FROM A WORLD OF STABILITY TO A WORLD OF CHANGE

I believe that vocational education, which is education for work, should give direction to the change that must take place in the Nation's social institutions.

My remarks to you this morning will concern a philosophy for vocational education: One that acknowledges social change and the complexities of human problems; one that integrates vocational education into the total education process.

If you have not read the Report of the National Advisory Commission on Civil Disorders, you should. This report says that despite our foreign commitments we have unfinished business at home. How to help all Americans become participants in and contributors to our society is the issue of our time.

We could continue to plan, evaluate, and budget as we are doing now or as we have done in the past. But sweeping reforms are being demanded. Not because the planning done in the past was wrong or because the programs were ineffective, but because the concepts are now incompatible with the mounting social, moral, and economic issues on the American scene.

Daniel P. Moynihan and many others, well-known for their analytical studies of urban problems, the ghetto, the plight of our "uninvolved" citizens, have told us that delay in facing the realities of the era may mean a crumbling of our democratic structure.

The realities of an age have always determined man's social structure. Let's take a look at the history of this country--at the history of mankind--and I think we will find that two forces, scarcity and stability, have influenced man's philosophies of politics, economics, and education.

Scarcity has always been a compelling issue: Scarcity of food, shelter, warmth, and scarcity of the material things. How can too small amounts be divided among many? What is each man's fair share? These questions have provided the basis for man's political and social institutions.

From stability emerged the right system, the right policies, the right program, because the approach to problem-solving and decision-making was based on the assumption that things stayed the same. Today stability is a condition of the past in most parts of the world, and especially in the United States.

Condensed from a transcribed speech, presented by Dr. Grant Venn at the National Conference on Program Planning and Budgeting for Vocational Education Personnel, March 1968, Washington, D.C.

This country, however, is still trying to find the answer, the system, the policy, the institution, and in the wake of rapid change most efforts have been fragmented and inadequate. This is made evident by the number of curriculums and curriculum development programs that have evolved in our school systems.

In the past, agriculture dominated the world of work, followed by mining and forestry. The worker produced the basic needs of man--food, fiber, and minerals. Just 30 years ago this Nation was an agricultural society, with its work force trying to provide enough food, clothing, and shelter for everyone. Before the 1940's youngsters had opportunities to learn about the kinds of work done in this country and the responsibilities of the worker.

No structured educational program, planned system or social institution "taught" work experience. This was acquired through the normal process of growing up. Even during the depression, youngsters were able to learn something about the value of work; many picked up coal by the side of railroad tracks for use as fuel.

The skills needed for the Nation's work were obvious. The youngster came in contact with the machinist, the truck driver, the miner, the farmer, the dairyman, the printer, the shoemaker, the seamstress, the baker, and the doctor, lawyer, and teacher in his community. All lived within commuting distance.

In 1917, Congress passed the Smith-Hughes Act so that people would have the opportunity to learn occupational skills consistent with the work pattern of the country. Some years later, the George-Barden Act expanded and continued vocational education programs to train people for work in a stable society.

Against this backdrop, what was the role of the public school system? The school's function has been and often still is, that of a selection agency. The system did not attempt to teach everyone to read and write. If everyone had completed public school and then college, who would have been around to pick the cotton, mine the coal, fell trees and split logs? Who would have supplied the muscle power?

All societies have had controls or institutions which determined who does what and who gets what. When educators developed the normal curve they discovered an effective device that could select who would stay in school and go to college and who would leave school and go to work. Many teachers have said and continue to say: "If you don't want to learn what we have to offer, quit. Go to work."

Before World War II, the youngster who took this advice, or had no alternative, could make his way. He left school after 8 or 10 years and found a place in the work force, was educated on the job, and if he were ambitious became a success. This could happen during that time when muscle power and ambition had economic worth.

With progress and change in America came repercussions in the ways people earned their living. Today we have a technological society which dominates our entire economic structure and puts to test our educational process. Only about 16 percent of our labor force is involved in the production of goods. Other industrial nations such as West Germany, France, Italy, and Japan have 40 percent of their labor force in unskilled jobs. I would describe the present situation in this country as one of abundance and change. Change is the spur, and this year's solution to a problem may not be the solution for next year's problem. You can't select the kinds of education, the kinds of vocational skills that will make people employable throughout their working lives. Even the definition for graduation, which is "completion", is out-of-date. Continuing education is the key to security in our changing society.

How has the work world changed in the United States? We find 60 percent of the total work force in the service industries. The service industries don't produce basic, material needs. Furthermore, any kind of repetitive work can be programed, and a machine then does the task quicker than a man. These changes in the work world have impact on program planning and budgeting for vocational education.

How is today's youth affected by change? What opportunities are offered them for learning about the different kinds of work to be done, the responsibilities of the worker to the employer, and the skills and training required for jobs? One of the tragedies of our time is the inability of young people to become part of our society. This is even true for the children of the wealthy in this country, but not to the degree that it is for those of the poor. The poor have been locked out of our culture. Providing opportunities for all young people to gain work experience and realize their potential is a key issue in program planning for vocational education. I think this should be a key issue in determining the future role of vocational education. For it is work experience that teaches a youngster responsibility, instills self-confidence, and offers him a chance to become self-sufficient.

The occupational structure of this country is complex. Young people no longer have opportunities to learn by doing or by observing. They have no idea of the type of preparation needed for various occupations. If you doubt that the work world is complicated try explaining your job to a 6 - or 12 - year-old. Try answering: What do you do? Why? How do you know what to do? When and how did you start learning your job? Yet, in some States the appropriations for vocational education cannot be spent until students have enrolled. Where do you find students to train if the school doesn't teach them what the options are and help them understand the nature of work?

The Vocational Education Act of 1963 does spell out some of the new options and goals. The philosophy of the act assumes that the needs of society and the individual will change.

What should be the role of the school in this changing society, and especially that of vocational education in the school? The school must reverse its role as a selection agency and look for excellence at all levels of ability. All youngsters should become job oriented in the school--be educated for work and for living. This means that vocational education must be included in the total educational process. If the school doesn't assume responsibility for helping our youngsters understand the world of work and the significance of the worker in our society, how will they be educated for work?

But public school systems still determine who will be taught and who will be "failed out." Each year, a million youngsters drop out of school. Teaching job skills to these youngsters so that they will have a chance to live in decency and dignity has to be done outside the regular school system. A certificate of failure from public school qualifies them for programs under the Manpower Development and Training Act, the Job Corps, and for other work-experience and work-study programs. In these programs, not in the school, a youngster continues his education and gains work experience. In addition, he can receive financial assistance throughout the training period. What has happened is that a needy student can receive assistance to enable him to continue his schooling if he has failed in the regular system.

If our schools continue to be selective, this country will develop another type of segregated or dual school system. Is it ready for a segregated system based on social and economic status? The problems that the racially segregated system generated are known to each of us. For the Negro, the system proved to be tragic and degrading; for our Nation, equally as degrading and almost disastrous.

If schools continue to apply the normal curve, teachers will continue to say, "I've got three more in my class that I'd like to see in the Job Corps." If we continue to select youngsters out of school or separate the poor from the wealthy, we're going to have problems that make our present ones seem small.

Vocational educators have a great responsibility to the total education profession for helping it reassess the principles of American education in a rapidly changing culture. What I'm saying is that every youngster, every person coming through our school system has to have vocational preparation. Some will acquire it in medical school, some in law school; and some are going to have to get it as sophomores and juniors in college, others as 11th-graders, 8th-graders, and 6th- and 4th-graders in our public schools. The day is long past in this kind of society when we can be effective as a nation unless we do this.

So I'm saying to you as vocational educators, spend less time talking to other vocational teachers and more time talking with your school principal, the English teacher, the history teacher. Help them understand this problem, because this is the segment of our educational structure which has been isolated from social change and human problems. This is not entirely the fault of the educators. They didn't know what the questions or the problems were, as short a time as 10 years ago. No one did. So educators and administrators hoped that if they did better what was being done, the problems would be solved or would disappear.

Basically, then, planning and budgeting for vocational education should be aimed at the development of human resources rather than at remediation and correction. Prevention of human cripples is the issue. In other words, the 1 million dropouts annually are building up a crippled manpower pool which will require remediation programs, so that we can't do away with these programs. At the same time, however, we must prevent further waste and develop the human resources in our present-day systems--the 80 percent who don't get the baccalaureate degree.

First, we must provide a program of occupational information for all elementary and junior high school students and for their parents. Most parents do not know anything about the world of work, particularly those who are in managerial-professional fields. They know less, it seems to me, about what the options in the world of work are than do middle-income skilled workers. Therefore, we've got to start in the first grade, teaching youngsters about the world of work and occupational preparation.

Second, I think vocational education must place greater emphasis on occupational orientation, particularly at the junior high school level and in the early years of high school. Efforts should be made to inform the parents and the teaching staff in high schools, colleges, and the 2-year institutions about occupational options. Essentially our vocational funding has been for students who are enrolled in vocational programs, but we haven't spent money to sell the program, or "lure them to the store." We've somehow just decided that they are going to float into the program without having had an opportunity to learn about the kinds of work and what the possibilities are, and we have never solicited the support of those who aren't going to be vocational students.

Third, if we assume that everyone must have occupational preparation and vocational skills to enter into the world of work, then we must develop in the future a broad work-experience program--cooperative work-experience, work-study--whatever you choose to call it. We must plan for 12 months of school, with one-quarter of the school year aimed at providing work experience for young people. This means getting the little neighborhood grocery store, the J. C. Penney stores, the dime store and the local hotel and restaurant involved in hiring youngsters and making them earners as well as learners. What I think is needed is a new kind of classification--a student-learner classification or earner-learner classification. When the student works on a part-time basis, he becomes not only an employee but also a student-learner or student-earner. This should be a part of his education.

Maybe we need a system where the 13-year-old starts on a part-time job at 50 cents an hour, when he's 14 he gets 60 cents, and when he's 15 he gets 70 cents, moving up the wage scale so that when he enters the labor market as a regular employee he can begin at the minimum wage level - whatever that may be. I think there are three kinds of work experience which should be offered:

(1) An orientation-type work experience to learn work requirements and the significance of the worker.

(2) Experience to develop employability or job-entry skills. (I think the college-bound student needs this opportunity as much as anyone else.)

(3) Experience compatible with the occupational goal of the student. (For example, if a student is ineterested in medicine, his part-time summer work might be with a veterinarian, and the boy who is interested in becoming a carpenter or a contractor could very well work as an assistant to a local contractor.)

Now I believe that business and industry is ready to work with the public school system in providing these types of work-experience programs. Today 123 colleges and universities in this country offer such programs. If educational credit were given for these programs supervised in the public school, this might make a difference in terms of a ninth-grader's attitude toward his other courses and his future.

The fourth area of responsibility for vocational education and educators is that of broadening the theory and skills offered at the high school and postsecondary level. More thought and planning must be given to the occupational clusters as well as to specific job skills that qualify the student for employment when he leaves school.

Fifth, vocational education will have to offer job-entry skill training programs to the boy or girl who received no vocational preparation in public school--perhaps 6, 4, even 2 weeks of intensive training.

Sixth, more emphasis must be placed on adult retraining. Today no education is terminal.

Last, I think vocational education will have to take responsibility for job-entry placement. I am convinced that unless the school is involved in job placement of its students, the curriculum isn't going to change. When we have to report at graduation ceremonies not only the number of college-bound students and merit scholars but also the number of students qualified for jobs, then we'll start talking program and curriculum in terms of job preparation.

I have tried to outline what seems to me to be some of the basic reasons for changes in planning and budgeting for vocational education, and for developing a system which has the support of business, industry, and the total educational complex.

Thank you.

STAFFING THE STATE DEPARTMENT
TO MEET THE NEEDS OF VOCATIONAL EDUCATION

by John A. Beaumont
Chief of Special Services
DVTE

I come to you this morning as one who has been faced with the responsibility of reorganizing a State Division of Vocational and Technical Education. Sometimes I feel that my conflicts with reality may have forced me to neglect the theoretical concepts of vocational education.

In order to hedge against this possibility in the preparation of this paper, I have reviewed several reports such as the Task Force Report on Juvenile Delinquency and Crime, several reports of Congressional hearings which impact on vocational education, the report of Ohio State University on The Emerging Role of State Departments of Education with Specific Implications for Vocational Education, The Notes and Working Papers of the Vocational Education Ad Hoc Committee and the Report of the Commission on Civil Disorders. These reports serve to intensify my conviction that the State Division of Vocational and Technical Education has a new role which can only be achieved by a major reorganization of State staffs. There is not only a new role, but also a changing role which might be called an emerging role. It is an emerging role because this role is in a continual state of change as new responsibilities are forced upon the State agency.

This emerging role is concerned primarily with the individual as contrasted with concerns for the institution. The concern is to develop an institution which will allow for the flexibility and alternatives which will meet head on the problems of the individual in achieving his goals and aspirations. Secondly, this new emerging role is concerned with developing the capacity in facilities, equipment, and staff which will provide the individual with those vocational education experiences and opportunities which will enable each individual to become a contributing member of society. This capacity will include occupational orientation, occupational development in its broadest sense, and placement.

In setting forth to serve the needs of the individual and to make available opportunities for vocational and technical education the State staff will be called upon to fill a variety of roles. I would like to review with you some of the roles that appear to have major importance at the present time.

In view of the nature of this conference I am prone to begin with your fiscal and statistical role--vocational education has never had sufficient information to move forward in an effective and efficient manner. Program planning and budgeting can only be accomplished when the State staff recognizes the major need for fiscal and statistical information.

You have an interpretive role in the State Departments. Some of you may prefer to call it a promotional role. Even though marketing was one of the major elements of my background, I prefer to call it an interpreting role, because I think the sale is really made. I don't think there is a need to promote vocational education in the sense we have thought in the past. It is an accepted part of our educational thinking. But there is a need for a dialogue with those who make the decisions, with those who affect what happens in education in this Nation. And this is where the vocational educator has tended to enclose himself with some kind of a separatism, because in this interpretive role I also see a role in assisting agencies and groups to achieve their goals. And vocational educators frequently have looked upon these other agencies and groups as intruders, and yet they are a very major part of society, and vocational education fits into certain aspects of their goals and aspirations.

Political forces such as the Governor, the Legislature, the Mayor, the City Council believe that their problems caused by frustration, dispair, unemployment, riots, are directly related to the failure of education to relate learning more directly to earning. The professions, business, industry are plagued with a lack of qualified applicants, particularly for technical and sub-professional jobs. Again vocational education becomes a little-understood focus for solving these problems.

Those concerned with the disadvantaged in the fields of welfare, health, mental health, rehabilitation sense a need for employment as a goal for those whom they are committed to serve. Vocational education must have something to contribute to these concerns. The educational administrator recognizes that he has not found a solution to the problem of educating a substantial portion of those children sent to his schools. This problem grows by leaps and bounds when the educator is confronted with the education of children in the metropolitan centers. The question arises as to what vocational education can contribute in these circumstances. Civil Rights has brought to the foreground the problem of minority groups who have not found their rightful place in society. Many services are needed to bring about changes that will right these obvious wrongs. In every case vocational education becomes one of these services.

You have a planning role, and certainly that is what this conference is about, because how do you provide this individual with availability without effective planning and projections?

You have an evaluation role because in evaluation you follow up your plans and projections. You follow up what you have accomplished in attempting to serve this individual and make available these needed opportunities.

You have an innovative, an experimental, a research role, and certainly this is one of the most important roles and one of the hardest roles to play. Where do the ideas come from, and what portion of your funds do you put into these ideas? This, to me, is one of the most difficult decision-making roles. This is where you become somewhat of a gambler, for it's easy to turn down the innovations, the experimentation, the requests for research. However, if you are to move forward, if you are to live in this era of change, you must try new ideas.

You have a management role, because some way or another things have to get done. You have a coordination role, and under most of the structures of State Departments of Vocational Education this becomes most difficult, because in vocational education we've had a series of independent empires functioning with an allotted amount of money, pretty much going their own interesting, self-controlled direction. If service to the individual is the goal of your operations, then you must coordinate all your efforts toward this objective.

You have a policy-formulation role, because anyone who has worked with a Board knows that you give a Board some suggestions before they establish a policy. They don't come up with a policy in a vacuum. You have a policy formulation role.

You have a major legislative role, and this tends to take precedence over other activities. Some way or another you have to have the legal authority, the necessary legal changes and the funds to function. I would say probably one of the most neglected areas of the legislative role is in securing the needed legislative changes to enable you to function in your new role. Every State is plagued with all kinds of legislative restrictions.

You have an implementation and a supervisory role, because someone has to help the institutions to implement, to improve, to develop, to secure staff, to build facilities, to purchase quipment, and to maintain continuous in-service teacher education.

You have a decision-making role, because sometime, somewhere, someone makes the decisions. No matter how much you do in program planning and budgeting and data processing, you merely obtain information that enables you to make a decision.

Now how do you fulfill this new role? You achieve the goals of this emerging role through an organization. You don't achieve it through a wide range of independent actions. You achieve it through a structure which focuses on your goals and objectives, and you structure in relation to functions to be performed. Function is the key element and the functions must relate to the overall goals.

So I would say if you are interested in change, if you are interested in development, you will think of an organization, a structure which is based on the functions you wish to perform to achieve your goals. Now in each of the packets I believe there is a statement which we have put together to give you guidelines in reorganizing a staff.

These are merely suggestions that you could use with your staff in reviewing your current organization and planning for a staff that can carry out the emerging responsibilities of vocational and technical education.

DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Office of Education
Bureau of Adult, Vocational, and Technical Education
Division of Vocational and Technical Education

STAFFING THE STATE DEPARTMENTS TO MEET THE NEEDS OF VOCATIONAL EDUCATION

Suggested Materials:

I. Guidelines and Assumptions

II. Goals

III. Functions

  a. Administrative

  b. Fiscal and Statistical

  c. Program Planning and Evaluation

  d. Program Operation

  e. Program Services

IV. Organizational Chart

I. Suggested Guidelines and Assumptions

The reorganization of a State Division of Vocational and Technical Education should only be undertaken after the acceptance of certain guidelines and assumptions. It is essential that staff and others affected by the reorganization understand the adopted guidelines and assumptions.

The following are suggested as basic to the implementation of change which will result from reorganization:

1. Goals should be established for the work of the Division. Federal vocational education legislation, particularly the Vocational Education Act of 1963, should form the basis for establishing these goals.

2. Function is the key element in reorganization and in the assignment of duties. After the establishment of goals, functions should be selected which will serve to achieve these goals. These functions will be similar in small, medium or large organizations. The specialization of assignment in relation to function will vary with the number of employees.

3. The present staff becomes the initial take-off point for any reorganization. All proposed activities can only be implemented through the work of the present staff. This guideline is based on the assumption that the current staff will be retained in the reorganization. Staff members must have assurance of retention but must understand that assignments are subject to change.

4. Present staff competencies must be related to the selected functions. Allowances have to be made in any reorganization because needed competencies may not exist in current staff. Priorities will have to be established with the result that some functions will be carried out on a limited basis. Those functions determined essential will have to be conducted even though it requires additional staff or current staff assignments which may be temporary in nature.

5. Reorganization is a staff activity which should be initiated and implemented through acceptable democratic processes. Administrative review and State Board policy decision are to be accepted as part of this democratic process.

6. Current procedures in operating practice must be subject to question and review. Only those procedures found directly applicable to the newly established goals should be retained.

7. Reason, not rule, is the most important consideration in discussions relative to reorganization. Staff activity should result in the development of a model with suggested alternatives. The model and the alternatives must show a direct relationship to the implementation of accepted goals.

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II. Suggested Goals

1. To provide vocational training or retraining which is realistic in the light of actual or anticipated opportunities for gainful employment.

2. To assure that vocational training or retraining is available to all persons of all ages in all communities of the State.

3. To provide a wide range of occupational curricula which reflects current and developing job opportunities not necessarily in every community but in accessible areas or regions within the State.

4. To provide ancillary services such as teacher training, supervision, guidance, the development of curriculum materials, and other activities which will insure quality programs and meet the needs of individual enrollees.

5. To assure that vocational training or retraining programs are designed and conducted for persons of all ability levels and particularly for those with special handicaps.

6. To use educational institutions at all levels from elementary to higher education to insure that appropriate vocational training and retraining will be available for individuals of various abilities and educational attainment.

7. To maintain appropriate fiscal and statistical procedures which will serve as a means of evaluation and planning.

8. To encourage and implement change through research and experimentation.

9. To coordinate efforts for vocational training or retraining among governmental agencies, educational institutions, labor, industry, business and the professions.

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III. Suggested Functions

A. Administrative functions

1. Report problems, actions and results to the following:

    a. State Board
    b. Executive Officer
    c. Governor
    d. Legislature
    e. Federal agencies
    f. State agencies
    g. Educational institutions
    h. Public - including business, industry, labor and the professions

2. Implement policies of the State Boards

3. Coordinate activities of the Division

4. Perform various personnel functions

5. Arrange for space, facilities, equipment and essential services

6. Approve expenditure of funds

7. Approve contractual arrangements

8. Plan, implement and evaluate the vocational and technical education program.

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B. Fiscal, Statistical Functions

1. Account for all contractual obligations and expenditures

2. Plan and prepare budgetary requests

3. Conduct internal audits

4. Conduct audits of reimbursed institutions

5. Initiate and submit for administrative approval all contractual arrangements including purchases and reimbursements.

6. Initiate and conduct appropriate controls for all property and equipment both in the Division and in educational institutions.

7. Prepare reports requested by Federal and State agencies.

8. Initiate reports that reflect fiscal and statistical developments for use in planning and evaluation.

9. Conduct continual evaluation of procedures used in data collection, retrieval and dissemination.

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C. Program Planning and Evaluation Functions

1. Review and summarize studies and research that have implications for occupational education.

2. Prepare projections and other statements dealing with the proposed initiation and extension of occupational education.

3. At the request of the Director, prepare position papers indicating various alternatives in planning vocational and technical programs.

4. Prepare the annual projected program of activities as requested by the U.S. Office of Education.

5. Prepare the annual descriptive report for the U.S. Office of Education, and the annual report of the Division to the Governor and the Legislature.

6. Represent the Division in contacts with Boards of Education, Presidents of Junior Colleges and Superintendents of local school districts.

7. Coordinate all studies and reports with the Fiscal and Statistical Service.

8. Plan with appropriate authorities vocational and technical programs for local school districts, area groupings of local school districts and junior colleges.

9. Maintain a close relationship with and exchange information with such agencies as the Department of Labor, the Department of Economic Development, interested legislative commissions, etc., relative to developments affecting vocational and technical education

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D. Program Operation Functions

1. Assist educational institutions in the planning, development and implementation of occupational programs.

2. Conduct reviews and evaluation of on-going programs for the purpose of improving quality and service rendered to students.

3. Organize and conduct in-service teacher education.

4. Initiate plans for curriculum development

5. Review and comment on proposed construction, facilities and equipment for occupational programs.

6. Review and comment on proposed staff for occupational programs.

7.

8.

E. Program Services Functions

1. Assist educational institutions in the planning, development and implementation of counseling and guidance.
2. Initiate and develop teacher education programs.
3. Promote, coordinate and supervise research and experimental programs.
4. Initiate and promote curriculum development in local institutions and universities.
5. Provide leadership in developing programs for persons with special needs.
6. Provide services in various related areas including work-study, residential schools, construction, cooperative education, etc.
7.
8.

IV. Suggested Organizational Chart:

Division of Vocational and Technical Education

--Office of the Director

--Fiscal Statistical Service

--Program Planning and Evaluation

--Program Operation

--Program Services

Educating the People Who Make the Decisions For Effectiveness in Meeting the Purposes of Vocational Education

Dr. Rupert Evans, Dean, College of Education
University of Illinois

I'm supposed to talk about educating the people who make decisions and this is one of the things that I've been working on pretty hard for the past few years. I've just finished one chore of this sort, on the Advisory Council on Vocational Education. When we got through with that report and saw the cold reception that it got by the Administration, I thought we had failed to educate anybody. But I was pleased to learn that some Congressmen had been reading this report, and they are some very potent decision makers. It may end up that that document may yet have some effect on decision making around this Nation.

I'm not going to spend a lot of time talking about the Council report however, You have it or most of you have it and I intend to leave some time for questions. If any of you have questions about the Report, I would be happy to try to answer them.

Right now what I'd like to try to do is to talk about what you and I can do in educating decision makers, recognizing that these decision makers are both inside your shop and outside it. Sometimes we think only about the people who are outside, such as legislators. But you have decision makers working for you and of course you yourselves are decision makers.

I really think one of our biggest problems in vocational education is that we have a grave tendency to talk mostly to ourselves. We hand each other our gripes and we hand each other well-edited stories of our successes. This may make you feel better on both counts: you get sympathy for your problems and you get pats on the back for your successes. But this does not make a difference, because the decision makers that you're talking to would have decided the same regardless of what you tell them. What you've got to do is to get your study to people, both inside and outside your group, so that you attempt to educate them to influence their decision making. Communication which does not change decision making is of little importance.

I'd like to spell out here a sixteen-point plan under five different headings. I'm not going to spend a lot of time on each of these points but I think each of them is important in terms of educating people who do make decisions. First of all let's talk about YOU and what you (and of course I'm talking about me too), what you ought to be doing in educating decision makers.

The big thing, the first thing, is that we must get sound leaders in vocational education with particular emphasis on State Directors and Directors in the big cities. And I will tell you just how to do each of these things right now.

Secondly, we must figure out a way of rotating these leaders. I have an uncle who works for the Methodist Church which has a cute system, at least in our part of the country. With rare exceptions, they figure that a fellow is going to do what he can do in about five years time and then he'd better move on. And I think it's a pretty good system. We ought to have a method of rotating our State Directors, our big city directors, our deans of colleges of education, and sorts of birds like this and do it at least every ten years--I think five years would be a good sound plan. Now don't misunderstand me, I'm not saying that a guy is worthless after five years. What I'm saying is that the chances are that he has brought to bear in that situation most of what he has to offer. By the end of five years he's made quite a few enemies and it's just about time for him to move on to another leadership role in another place where he can put into effect some of his ideas in a place where he hasn't yet built up some of these enemies. I would love to see somebody come up with such a plan. I don't think we're going to give this responsibility to "Bishop" Mack to have him rotate us around, but I can remember a day when there was a good deal of rotation. You could figure on a fellow rotating through a directorship at the local level, into the State Department, into the U. S. Office, back into State Offices, back into bigger local places. I don't think we're doing nearly enough of this now.

Third, you as a leader and an educator of people who make decisions have to represent all of vocational education. I'm sure that you pat yourself on the back every night before you go to bed and tell yourself about just how you've done this. But let me give you a test. First of all, of course, in order to represent all of vocational education, you've got to know all of vocational education and most of us don't. But here's the test that I ask you to apply before you pat yourself on the back before you go to bed at night and it is to ask yourself: "Now I've been talking to some people today about vocational education; I've used some illustrations, pointed out some good programs, some poor programs. I've pointed out how we work with some kids and help them, how we work with some adults and help them; ask yourself this--where did I draw these illustrations from? And if you're like most of us, you drew 99.44 percent of these instances out of your own field which indicates that you may know that pretty well but you either don't know the rest of vocational education or you're not drawing on it. Try that test sometimes.

Fourth, if you're really going to educate decision makers then you have to do your homework. When you have a meeting with one of these birds coming up, get your facts and figures together on the things that you're going to talk with him about. Not on the things just that you are interested in, but the facts and the figures on the things that you know he's going to be interested in. I call it "homework" deliberately, because you never have enough time to do this at the office. But believe you and me there would be lots of meetings that would be better off not held because we educate decision makers in the wrong way by not doing our homework in advance. And you're better off not to have a meeting if your homework isn't done. We look like fools in some of our meetings with decision makers.

Fifth, when you try to educate this guy, don't be afraid to admit that you've got problems, you've got difficulties, and you need help. After all, if you were perfect you wouldn't need his help; you wouldn't need to court him. I'll say a little bit more about this matter later. I've picked out three of these sixteen points that I want to emphasize just a little bit more than some of the others.

Sixth, don't be afraid to work. I have a notion that there are two kinds of people who work overtime. There are the people who are completely inefficient and can't do the simplest task during the day (sometimes I think I'm in that category). But the other sort of person who works overtime is the one who is really out to lead in his field. You can count on one thing--the fellows who just work during the working day are coasters. They may go along all right if somebody gives them a push, but they're not going to get very far on their own. Now if you're working overtime, ask yourself which of these two categories you fall into.

Now the second main heading--remember the first main heading was YOU--the second main heading is YOUR SUBORDINATES--the people who work for you. Here's another place where we stub our toe time and time again. For goodness sakes, don't try to deal with all the decision makers yourself. You've got to have confidence in your subordinates. You've got to let them know, personally, that you need them. I have a notion that most failures of No. 2, No. 3, and No. 4 men in Vocational Education organizations are due to a feeling on their part that the boss does not have confidence in them. I believe more failures occur from that cause than from any other single thing. I know of a particular institution of higher education that turns out School Superintendents. They do a pretty fair job of selecting people, but no better than lots of other places. And they do a pretty good job of training them, but no better than lots of other places. But they have one thing there--they have a Placement Officer who has been around a long time and who knows the people they are training, and he has absolute confidence in them. If an important job comes up, you ought to see the letters that placement man writes. He always sends a copy (on the quiet) to the guy he's recommending. And graduates of that institution perform fantastically well. I don't think they've ever turned out one who was an absolute failure. They have turned out some who are performing way over their heads just because somebody has confidence in them.

The eighth point, the second one under this heading, is To Get Subordinates Who Are Different From Yourself, and I'll say more about that one later. Get subordinates who are different from you.

The third general heading--OTHER PEOPLE.

Naturally we think first of those who already see benefits from Vocational Education. You might try using your professional associations as a means of educating decision makers. The AVA does a pretty good job nationally on this, but some of the State associations certainly don't. There are so many times that a group of professionals can say things to legislators, to other decision makers, that you could not begin to say yourself. They are a potent means of educating people who make decisions.

The tenth, and the third point under this general heading--Don't Forget that One Word from a Disinterested Party Is Worth at Least 100 Words From Somebody Who Stands to Benefit From What He Is Pushing. I saw a first-rate example of this last week. I saw Leonard Rosenberg, who is an insurance executive, and a member of the Advisory Council on Vocational Education--I saw him testify on the Hill. It's obvious that he doesn't have an axe to grind. That guy spoke right out, very strongly, for Vocational Education. It was obvious that he knew what he was talking about. And I can't help but feel that his words carried far more weight than the words of some of the rest of us who in one way or another could be regarded as having an axe to grind.

The fourth general heading, THE DECISION MAKERS. It's an old principle but still a pretty sound one, that it's a good idea to work with the decision makers on projects that they want to push, and about the same time ask them to work on projects that you want to push. Too often we go around talking to decision makers only when we want something. I'll swear that if there has been anything that has helped us in Illinois to educate decision makers, it has been through this one thing--working with these decision makers on projects that they feel are important--knocking ourselves out to help them on this. They get to know you, they get to trust you, and they are perfectly willing to knock themselves on projects that you think are important. But if you just wait until you need something to go around and talk to them, that's too late.

Don't forget to work with the No. 2 man as well as the No. 1 man. You know as well as I do that when a decision maker is overworked, and most real decision makers are overworked, then many of these decisions really get made by the No. 2 man. I remember a classic study of this in Congress not too long ago, when a Congressman seemed to be too busy and a clerk decided on his own to make a substantial change that resulted in the loss of several million dollars to our program. The clerk was probably a No. 5 man, but somebody hadn't cultivated the No. 2 man, who could have restored the cut.

And another old principle that still holds is that it is a very good idea to feed ideas to the decision makers and let them take the credit for these ideas.

Fourteen, Don't Be Bashful. Now maybe most of you think that's an odd statement. Most of you don't think of yourselves as being bashful, but a good many of you are. An awful lot of good ideas never come to light just because nobody pushes them. And it is amazing sometimes how something that you think is a little bit "way-out" gets acceptance just because you pushed for it.

Fifteenth, Decision Makers Are Continually Changing. It's a darned good idea to be hard headed and not to allow old friendships to cloud your view of the realities when you set out to influence decision makers. And I'll say more about that one later. There are three of these I want to emphasize.

Sixteenth, and last, is under a heading all by itself--called Planning--and this is a very simple one. Have a long-range plan, but be opportunistic about immediate opportunities which are in accord with your long-range plan. Now there are two extremes here, and you see them all around you. You see the guy who doesn't have any long-term plan, and who grabs onto anything that comes along and runs with that for a while, then drops that to run with something else that looks a little more appealing at the moment. And the other extreme is the occasional guy who comes up with a long-range plan that is so rigid, that he says, "This has to occur before this, and this has to occur before this." He can't be flexible enough to take into account the immediate opportunities that very often present themselves if you look around for them. And most often what happens is that you can fit parts of your program in with someone else's program if you have a program.

Now you've heard the sixteen points, but let's talk further about three of them:

Number Five: Don't be afraid to admit you have difficulties and problems. If you were perfect you wouldn't need help from the decision makers. You know, I've been working with some big cities off and on--mostly off, until about three years ago--when suddenly the Superintendents in big cities found that it paid to admit that they've got problems. I could mention one big city school which absolutely would not let anybody in to look at any of their data. Once when they thought some data was going to get away, they absolutely blackmailed the research director on a national project and completely emasculated the project because they were afraid to let these data outside the walls of the central office of that school system. But things have changed, because finally they have recognized that it pays to admit that you've got some problems. Some of my friends criticize me severely for some of the things I say about Vocational Education. Of course some of my associates criticize me for some of the things I say about General Education, too. But my friends ask, "Why in the world did you treat us that way? There are plenty of good things you could say about us. After all, Vocational Education is spotty, ranging from the best that could be imagined to the worst that could be imagined. Surely you could have picked out the good places to look at, mentioned those, and forgotten conveniently about the rest." Of course I could! But this isn't what influences decision makers. If everything is going along fine for you, why do decision makers need to help you? They don't--they have plenty of people who are crying for help and need it badly. The thing to do is to point out your successes; by all means let them know about your successes, but by all means also let them know about some of your problems. And of course don't knock the other guy's program. Emphasize the good things about your program such as the very modest costs and the very large numbers of people that we serve, and that alone is enough to form a contrast with some other people's programs. You don't have to knock them. But on the other hand, don't go around again patting yourself on the back to the extent that you tell this decision maker, "Everything is wonderful in our program--just give us more money." That doesn't sell any soap at all. And even if it did sell soap, it wouldn't sell soap for very long, because we have some very real problems in Vocational Education and we can't keep them under cover any more than the big cities can keep their problems under cover.

Now let re re-emphasize Number Eight: Get subordinates who are different from yourself. If you want a claque, a hired group of people to applaud you every time you say something, of course get people just like yourself. But I don't think that's why you want subordinates. Surely you want subordinates who can carry out things that are important and can carry them out better than you can. And if that's what you want in subordinates, then they've got to be different from you--different in a whole variety of ways. For example, they ought to be different in age. I was making a quick estimate in here: I think we've got a bi-modal distribution at about ages 57 and 40--not very many young birds in leadership positions in State Departments of Vocational Education. Another reason for having them different: each one of these decision makers has some biases about the sorts of people he likes to talk to. Remember that each of us is listened to by persons who have confidence in us. Remember also that no matter who you are there are some people you can't reach. It surely helps to have somebody around who is different enough from you so that he can reach a decision maker that you can't reach. If a particular decision maker respects an economist, then you'd better have an economist on your staff who can get to him. And if he respects some other type, or for that matter some other individual--not a type, it's a good idea to get him on your staff, at least on a temporary basis. But the biggest reason for having people different from yourself is to get away from this business of everybody talking to the same types.

I can remember some real hog-wash put out in national meetings in our field--something like "Let's exclude all the boys who don't have the tried and true philosophy of Vocational Education." It was put just about in those words. Nuts! If you want to hold hands and play Ring-around-the rosey, I suppose this is all right. But if you're trying to learn something yourself (because remember you're a decision maker and you need to be educated too, just as I need to be educated), one of the best ways to get yourself educated is to talk to some people who have ideas different from your own. Every organization ought to have a loyal opposition. Let's not call them that, because that puts them into a corner. But let's have some birds in every organization who are not afraid to speak out, who know they're not going to get punished for coming out with an idea that is a little bit off-beat, because every so often those off-beat ideas are going to be a lot more workable than some of the tried and true principles that were laid down on the mountain in 1917. I think that for a long time we have really stressed conformity. And you don't get leadership, you don't get communication with decision makers when everybody is patting each other on the back: "Yes, sir, you've got the tried and true philosophy." One way of putting it is that I really think that up until two or three years ago we almost had a one-party system in our field.

Now the third of these points that I want to emphasize is Number Fifteen: Decision makers are continually changing, so for goodness' sake be hard-headed and do not allow old friendships to cloud reality, or your view of the realities of the world. Now this may sound downright cold-blooded. If it does, I apologize. This is one of the reasons, frankly, why we need to change the top man fairly frequently. We said earlier that he develops some enemies, and he does. But he develops some friendships too, and it is awfully easy to let these friendships cloud your judgment.

Now let's take a little test on friendships here. Are you talking to Civil Rights leaders who are, after all, making some decisions which affect you? I don't mean talking to them just in response to their protests, because they'll come in and pound on your table, and you've got to talk to them then. I don't mean just complaining about the things they are doing which you don't like. What I do mean is to talk to them about some things that you can do which will help them, and to get their ideas on things that you ought to do to help them. My guess is that very few of you have been active enough in this field that you have had time to develop some old cronies, though that may come one of these days. But let's turn to another field--legislators. Who are you talking to? It's very easy to get into the habit of having lunch with good old Joe Blotz who at one time had some interest in education and had some power in the Legislature, and you go on having lunch with him and play cards with him the second Tuesday of every month. Well, I've no objection to your playing cards with him if you regard him as a social friend. But let's not mix up your social friendships with the things that are keenly important to you on your job. Now here's the cold-blooded part, I suppose, for I'm saying that cold-bloodedly, as a part of your responsibility in leadership, you've got to strike off some of these people who no longer count, who are no longer decision-makers, and you've got to spend your time with the people who are the decision makers because you can't educate them if you don't reach them. By all means see the others socially, but let's not let this interfere with your work.

I could say a lot more about this and I could give you some examples of some things we are trying to do, and I am sure you could give me ten times as many examples of things that you are trying to do. But let me close with just this one comment and then let's open it up for discussion if you will.

I've laid out five general areas and sixteen specific points which should help you perform better a most important part of your job: educating decision makers. These skills in educating decision makers can be learned, as can most other leadership skills, and like most other skills they are learned best through a combination of theory and practice. We have trained leaders in significant numbers only three times during the history of vocational education in this country: in the early 1920's, the early 1940's, and now. Training leaders once each generation is no way to build a program. I hope that one of your first applications of what I have said today will be to educate decision makers about the need for continuous development of the leaders who will bring vocational and practical arts education to even greater heights.

Planning, Programming and Budgeting as Related to the Role of Vocational Education

Dr. Alice Rivlin
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I would like to talk this morning about Planning, Programming, and Budgeting from the point of view of the Department of Health, Education, and Welfare. I would like to tell you about the experience we have had in putting this system into effect in the Department in the last two years, what we've learned and what we've not learned (which is a lot); how it might relate to your problems with Planning, Programming, and Budgeting at the level at which you work; and how we might all work together to make the planning a little more effective.

PPB is a decision-making tool. It is designed to help people make decisions about allocating resources among competing objectives. Let me think with you a little bit about the problem that the Secretary of Health, Education, and Welfare has in allocating his resources. Obviously, it is not just his problem. Congress has something to say about it--the President has something to say about it. But at some point, the Secretary has to sit down with his Budget people and his Planning people and say, "Now what do I really want to recommend--whether I get it or not? How would I like to allocate funds among the many different kinds of things that this Department does?"

The decisions which effect allocations of resources are of many sorts. They are partly budgetary decisions that must be made every year: what budget do we go in for with numbers beside each of the possible programs? They are partly legislative decisions: what do we want to do to change the law--to add a new program or make an old one more effective? There are also administrative decisions: what kinds of things should we be encouraging within individual programs which look good, which seem to be working well? These may not be real administrative decisions in the sense that we can tell you people in the States what to do. But when we have some idea of what you ought to be doing, we can at least say so. And so part of the allocation problem is the problem of figuring out what looks like a good thing to be doing under the various categories of programs and then advertising it.

Now if you are a Secretary of Health, Education, and Welfare--what do you need to make these kinds of decisions? First, you need a clear picture of what the objectives are--the multiple objectives--of the Department. You have to have some way of organizing the information on what is now being spent, not in terms of how many pencils and how many construction sites are being bought, but in terms of the objective of these programs.

Clearly, we need a program budget and an information system which is organized around the objectives of the Department. We have, in the last two years, produced such a program budget, and it has been helpful, I think, in reorganizing the information as it comes to the Secretary so that he can at least see what the money is being spent for.

The program budget was most helpful, I think, not in Education, but in Health. There were Health programs spread all over the Department, but nobody had put them all together before and said, "This is how much we are spending for Health." We pretty much knew what we were spending for Education. The budget that we had, which was an appropriations budget, wasn't really so far from being a program budget. The appropriations categories for higher education, for vocational education, for elementary and secondary education, do, in general, tell you what the money is being spent for, though not in terms of what the ultimate objectives of the program might be.

Well, what else do you need? You need information on what the present programs are accomplishing, and then you need studies of the alternative ways of accomplishing the same objectives. If one of the objectives is eradicating poverty, there are lots of ways one could go about achieving this. One could give money to people; one could look at the effectiveness of social security programs in raising income; one could look at the effectiveness of welfare programs; one could look at the effectiveness of various training programs in vocational education. We have lots of training programs in the Department. Some of these raise incomes for people who are poor-bring them across the poverty line. That is one objective, and it is a broad one. If an objective is more limited, such as teaching poor children to read--then clearly there are more limited alternative ways of doing this. Now these alternative methods need to be looked at to see how effective they are. Where can we find an example of an effective program; what does it look like; what age level is the most important; etc.?

A problem such as providing medical care to Indians can be tackled in alternative ways through hospitals or clinics, big ones or little ones. Where should they be located to be most effective?

Finally, perhaps the most important thing one has to do to make these allocation decisions is to think ahead--not about objectives for next year--but to think clearly what the objectives for three to five years from now might be; how important each of them is, and what the reaching of these objectives three or five or seven years from now (I don't know if there is any magic planning horizon) means in terms of how the present resources are to be spent. What changes have to be made in this year's budget to effectuate longer run results?

That's all very well to talk about planning, but how does it work in practice? What have we learned? Well, we've learned that it is extremely useful to organize the information about programs around their objectives. We've learned a lot more about what the money the Department spends is spent for, who gets the money--what is the target group? What are the kinds of activities that are being supported? That sounds kind of elementary, but it isn't really. At least the Secretary now has available to him charts and tables and statistics that can answer interesting sorts of questions like how much money is being spent for health? How much is being spent for training? And, who is being trained?

In the process of putting together this information, we found a very mixed picture, so far as information went. For some programs we had good information, for others we had less good. Vocational Education, as the Advisory Commission has pointed out, was one of the weak areas. It's very hard at the national level to see what the money is being spent for, what are the characteristics of the students, and what's happening to them.

What else have we learned? We've learned that hard information on the effectiveness of Federal programs is very hard to come by. This is true of vocational education, but it's also true of almost everything else. There's nothing very special about vocational education in this regard.

There has been, up until quite recently, no real effort to look at what happened as the result of the expenditures of Federal funds. For example, in higher education, we know how many students get loans and various kinds of scholarships, but we don't know what happens to these students. We haven't found out how many of them graduate, what they do afterwards, and the kinds of information one might like to have in evaluating whether this kind of program is really meeting the objective of getting more college graduates. At the elementary and secondary level--Title I of the Elementary Secondary Education Act--a major program for raising the education level of deprived children, we can't really say what are the results. As a result of this program, are these children functioning better than they were before in first grade or in third grade or in fifth grade?

What else have we learned? Well, we've learned that analysis can be extremely useful. I'm talking about analysis of alternative ways of reaching defined objectives. We've done a good many studies that have at least helped elucidate problems such as which diseases are the most amenable to control. Given the present state of medical knowledge, would it be better to spend money controlling tuberculosis or cancer or heart disease. What is the relative payoff in terms of lives saved and disability days saved by extending care. Now that's a sort of a small decision. It is one based on the assumption that controlling disease is a good thing. The decision to be made is which diseases do you put your greatest effort on?

The larger decisions--how much money for Health versus how much money for welfare versus how much money for education, for higher education versus elementary and secondary, for vocational versus something else--have not proved amenable to any simple kind of analysis, and it's my frank opinion that they never will. It's going to be a very long time, if ever, before the cost-benefit analyst can have anything useful to say about that kind of big decision. There are a number of reasons for this. One is that the benefits are really not measurable in the same terms. How can we measure or compare the benefits of a health program which helps old people with the benefits of an education program for small children? It's not obvious that these benefits can be converted into money in any way, or compared in any sensible way at all.

We don't know how to do it now, and I think it's going to be a while before we do. I'm not even sure it's useful to try. Even if you could say the benefit-cost ratio for Medicare is 13.2 and the benefit-cost ratio for preschool education is only 11.7, I think the only answer to that is: So what! These are not the same people. Preschool children we care about for themselves and old people we care about for themselves. How much money is devoted to the problems of each is a political decision; it's a humanitarian decision; it's a power decision; but it's not an analytical decision--not one with which statistics, even if we had them, could be very much help.

The other reason why I think the benefit-cost type of reasoning at this level of big decisions is not useful is that the differences within any one program are so great, that an average measure of effectiveness is really meaningless. It may not be a sensible question to ask how effective is vocational education, what is the cost-benefit ratio of vocational education as a whole? What would you do with it if you knew? The real question may be, what are the differences in effectiveness in various kinds of programs? What kinds of things are best, and how can we make the whole program better? Those are much more interesting questions and ones I think that are much more amenable to analysis. Where we've come out in trying to apply the PPB system to the big problems of the Department is that we really need much more work on the smaller problems--the decisions of how to run a particular program better--which is exactly the same kind of decisions that you are concerned with.

The usefulness of the system is the same to you and to us. Now you are presumably not very much concerned except as citizens with what is spent for health or for welfare or for preschool education. As professionals, you are concerned with a narrow range of decisions--mainly who should be trained, and for what--and how to make the training program more effective. That sounds like an easy range of decisions, but it's not really very easy. First, you have to focus on what you mean by making training programs better. What is your measure of success? Is it the skill acquired, in some measurable sense, at the end of the training program? Is it the earnings that the graduate earns and how long? Do you measure them only in the first year? Or are you interested in what he earns ten years from now?

Even if you have measures of success and presumably there's no unique measure, you're interested in relating those measures of success to the relevant cost of the program you're looking at. This, too, is no easy task, for it isn't always obvious what costs are relevant and exactly which ones should be attributed to the particular programs in which you're interested. You have to worry about controlling for the ability of the student. Do programs appear to be successful only becasue the ones who went through this particular training program are a lot smarter than the ones who went through some other training program? This "success" cannot really be attributed to the training program because of the characteristics the student had at the beginning.

All of these things are problems. They don't sound like entirely insoluble problems. If the information were there, it would certainly be possible to go along much further than is now possible in giving an honest look at the comparative effectiveness of different programs for training the same people (assuming for the moment that we're not worrying about who you train, which is a more difficult decision).

The impediments, however, to really finding out what is the most effective way to do training are not entirely information impediments as you all know. Even if one collected information on costs in a more sensible way than they are collected now, on what happens to students after they get out of a training program, that's only part of the battle. Part of the battle, too, is the fact that things that are being done now may not be the only things that you really want to look at in considering possible alternatives. Finding more effective ways to do things can only come when there is a willingness to experiment with quite radical different kinds of things; different kinds of programs in school, out of school, cooperation with industry.

The willingness to experiment seems to me to be in part a psychological problem. It requires a willingness to fail, to face the fact that the experiment may not work. This may not be as hard for the experimenter as it is for the taxpayer and the people who are supporting the experiment to recognize that these innovated programs must be tried. Some people may get worse training and that's a kind of a lesson that needs to be learned too, but it's a costly lesson.

Then you have a harder problem; not just what is the most effective kind of a training program but who should be trained and for what? I want to say a word here about cost-benefit ratios, their usefulness and non-usefulness. I guess it boils down to this. It's good to have them, but it isn't good to take them too seriously. If one were free to do anything one wanted in the way of training, it seems fairly clear that one would at least want to know the payoff in terms of earnings over and above what the student is estimated to have earned without the training program. What is happening now, what are our most cost effectiveness programs, let's find out and let's keep a record of them. Let's follow these students, let's make honest estimates of what they might have earned if they hadn't gone through the program and then let's relate these to fairly honest estimates (to the extent that we can make them) of the cost of individual programs and let's see where we find the greatest benefit in relation to cost. But suppose you knew that, what would you do? Would you expand those programs with the highest cost-benefit ratio? Well, not necessarily, and for a couple of reasons. One is that the present is not always projectable into the future. What you really want to know is not what are your students of ten years ago earning now, but what will your students of now be earning ten years from now. That's the relevant benefit measure to be put into a cost-benefit ratio. But you don't know, and the economists aren't really very much help in trying to tell you. The projections can be made, they are useful but they can't be taken as gospel.

But the other problem, even if one had sound, solid cost-benefit ratios projected into the future which told you that the payoff of a certain kind of training program was greater than another--then what? The other problem is the different people in the possible pool of trainees that we're all worried about. For some of them the payoff may be very great in terms of what additional earnings they could have if they went through a training program, but these are people who wouldn't have been in very bad shape anyway. There are others where the beginning skill levels and general education and intelligence levels are much lower where it may be much more costly to bring them up to the point where they can hold any kind of a real job at all and where the benefit-cost ratio may look rather low. Here we're back to the kind of distributional decision between one kind of group and another. Do we want in the name of efficiency to put all our efforts into those where the payoff is higher? Or are we most interested in bringing those at the bottom of the income distribution up somewhere to a reasonable level of living? This again is a problem where analysis isn't much help. It is a political decision, a national decision, but also a local decision about where one wants to put one's effort. I'm not saying, incidentally, that it is obvious that the poor or the disadvantaged are the lowest payoff group, but it's possible. And it may make the cost-benefit ratios less useful than they would otherwise have been.

I'd really like to stop about here and turn this into a discussion if I may. I haven't talked very long which gives us a fair amount of time for questions and answers, if you'd like to take it. I could find other things to say if you don't.

Q. Why do we have so much attention on PPBS and what are your basic objectives on it?

A. Well, I think the basic objective is to spend our public money more wisely. And why we have so much attention to it right now, I'm not sure except that the importance of the public sector is growing. In education, I think the concern with the quality of education has suddenly become important; it's become the public policy question facing the decision-makers whoever they are, in education. For a long time, when you talked about public policy problems in education, you were talking about how to build enough schools to meet the population bulge and how to meet certain minimum standards in the quality of the school buildings or certification of teachers. The question of what is it that the kids actually learn, what is the objective of all of this activity, is relatively new. Why it arose right now I really don't know, but it did.

PPBS, I think, is sort of an accidental set of initials for something I think that would have happened in Government and presumably around the country along about now anyway as people realized that a larger and larger share of their resources were going into public programs, into tax supported programs, that there was a growing demand for public services of all kinds and that maybe it was time to take a look at what are we really spending this money for. Are there more effective ways of reaching these objectives? What do we know about what is actually happening as a result of public programs.

Q. Where does the cost/benefit enter in?

A. Well, I think what maybe I'm doing is fighting a straw man. But I think it's a useful straw man to fight. The thing which I think is highly useful is finding out what happens as a result of the programs that we have and looking at both the benefits and costs in an organized way. The thing that I'm saying is not useful, is to assume that there's anything automatic about this process of looking at costs and benefits that will dictate certain decisions after it's been done. There is sort of a fear, I think, among those who haven't actually gone through this process that somebody is going to take all the benefits measured in dollars, and all the costs and benefit ratios and then automatically say the program with the highest cost-benefit. ratio is the one that gets more money. It's not obvious that this is right. It's not obvious that we shouldn't have the cost benefit ratio. The decision is improved by having a clear knowledge of the benefits and the costs but there's nothing automatic about the decision when the beneficiaries are different people, and when the benefits cannot be completely measured in the dollar measures that we have.

Standard Terminology in Local and State School Systems

Dr. Dale Chismore
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Otto and Friends, it is pleasing to have an opportunity this morning to discuss with you the third draft of Handbook VI, Standard Terminology for Instruction in Local and State School Systems, which Otto mentioned, and share some of the details involved in the developmental activities of the project over the past five years. Some of the reasons why this cooperative project came about and some of the major activities that have brought us to the third draft stage of the handbook will be of special interest to you, especially in view of the educational changes taking place and the purposes of your conference.

It should be made clear at the outset that much credit for the development of the handbook, to this point, is due to people in the Division of Vocational and Technical Education. They gave us encouragement at the outset; they have given us production; and they have provided counsel continuously. Best of all, they have provided encouragement throughout the project. Believe me, these are the elements that make a project worthwhile.

There have been many people outside the Division of Vocational and Technical Education involved in the handbook project. Other specialists in areas of general education, the disciplines, in the Office of Education have been extremely helpful, too. We have also visited and counseled with people from coast to coast, and from the Canadian border to the Gulf, concerning the content of this handbook and its organization. Among the hundreds of persons outside the Office of Education who have been providing continuous counsel, guidance, and production assistance have been representatives from State departments of education, colleges and universities, local school systems, labor, business, industry, and national professional educational organizations.

I have made some notes for myself because one can easily become carried away with a project that you have lived with for five years--the product of which is interesting, challenging, needed, and has many potential uses. I'm going to stick somewhat to my notes in an effort to review as many aspects of the Handbook VI cooperative project as time will permit.

Historically, this project was started about eleven years ago, but because of unavoidable interruptions it was deferred. It was reactivated in 1959, but nationwide needs and demands for two other handbooks created priorities that necessitated further delay in the project. These two handbooks of the State Educational Records and Reports series, now completed and in use across the nation, are: Handbook IV, Staff Accounting for Local and State School Systems, the development of which was coordinated by Mr. Allan R. Lichtenberger; and Handbook V, Pupil Accounting for Local and State School Systems, the development of which was coordinated by Dr. John F. Putnam. In 1963 the research and developmental activities in the Handbook VI cooperative project began in earnest and have continued without interruption. Dr. John F. Putnam and I have been working on a team.

with Allan R. Lichtenberger, our Chief, coordinating the activities of 19 committees, more than 60 national professional educational organizations, several regional conferences, and individuals in the development of the handbook.

What really brought about this cooperative project for the standardization of terminology for instruction in local and State school systems? (For our purposes today let us consider curriculum to be what is taught, and instruction to be how the curriculum is taught.) For many years educators at the local and State levels have indicated and voiced the need for information about curriculum and instruction--information which is discrete and which will meet the criteria of comparability and combinability. They want information that can be collected, recorded, and maintained with reasonable effort and which can be used for purposes of reporting or exchanging information; or for study, interpretation, and dissemination of information; or for research and evaluation concerning curriculum and instruction, and for other purposes.

Local boards of education, citizens in the communities, State education agencies, legislative bodies at different levels, some Federal agencies, professional educational organizations, et al., have indicated the needs and desires for such information. The Association for Supervision and Curriculum Development during its Fifteenth Annual Conference (March 6-10, 1960) adopted a significant resolution--Resolution number 20 1/. The resolution called attention to Title X of the National Defense Education Act of 1958 and its provision of financial support for improving the collection of educational data and statistics. Briefly, the resolution noted the need for gathering information about curriculum and instruction and suggested "that the U.S. Commissioner of Education and State educational authorities establish study groups to determine the kinds of information most urgently needed, and the means by which such information can best be obtained."

Most of us like to think (and correctly) of curriculum and instruction as being temporary and current, yet forever undergoing change. By maintaining information about curriculum and instruction in a discrete and logically classified form, the potential for using such information is almost unlimited. For example, it can be used for enhancing selected studies and research; curriculum development, evaluation, and revision; scheduling pupils into classes; reporting to local boards of education, communities, or State education agencies; exchanging information with other schools or school systems; and financial accounting.

In the past it has been very difficult to secure discrete information in breadth and depth about curriculum (what is taught) and instruction (how curriculum is taught). There has really been no extensive treatment of subject matter, per se, in a taxonomical manner. Handbook VI, which is in third draft stage, reflects the results of five years of cooperative efforts to achieve the identification, classification, and definitions

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1/ Association for Supervision and Curriculum Development, "Resolution Number 20" News Exchange, Vol. II, No. 2 (Washington, D.C.: 1960) page 18.

of a wide range of items of information about curriculum and instruction appropriate to the spectrum of elementary, secondary, junior college, and adult education instructional programs.

Now, having shared with you some information about the needs for this project, selected developmental activities, and timing to this date, please permit me to review several sources of data to which we turned for additional assistance, particularly in the initial stages of planning and research activities. First, we researched the records and reports forms of the 50 State departments of education. From these forms we made a compilation of all items that related to curriculum and instruction. Secondly, we studied the records and reports forms of 200 local school systems ranging in size from New York City to Alliance, Nebraska. A wide range of professional literature concerned with curriculum and instruction was carefully researched. Innumerable conferences were held with people in the Division of Vocational and Technical Education and with other persons in the Office of Education in the general education (or disciplines) subject-matter areas. We also conferred across the country with personnel in State departments of education, colleges and universities, and some local school systems, as mentioned earlier. From these springboards we were able to generate concepts as to the scope and content of a handbook of information about curriculum and instruction.

Using the data that had been reviewed and refined, the information from reviews of professional literature and the counsel of many people, a preliminary cooperative project design was developed. A preliminary scope, outline of the content, and organization of the proposed handbook of terminology was also developed. In April 1964 a Policy Committee was convened to review the proposals and advise concerning both the appropriateness and feasibility of the project. The committee was comprised of the executive secretaries of 13 national professional educational organizations. One of these was the American Vocational Association, Incorporated. The executive secretaries reviewed the proposals very carefully (and let me pause here a moment to say that they reviewed them very analytically) and after a substantial conference they suggested that we go ahead with the project. Each executive secretary agreed to appoint a representative of his organization to serve on an Advisory Committee to work with us. It was agreed that the Council of Chief State School Officers would have two representatives on the committee.

Following the Policy Committee meeting we extended the development of preliminary materials for a meeting with the Advisory Committee. This committee met with us in May 1964 and meticulously reviewed the materials, the purposes of the project, and the planned long-range procedures. The committee provided excellent counsel and advice for our moving on to the development of the first draft of the handbook. This meeting of the committee was called the National Planning Conference.

In March 1965, following the completion of the first preliminary draft of the handbook, a technical committee of highly qualified persons from over the nation was convened to review the draft and advise concerning various ways to improve it re scope, content and organization. This meeting lasted for five days and was called the Technical Conference. The many suggestions for improvements received at this conference clarified a great number of problems.

After the Technical Conference, work commenced immediately on the development of a (preliminary) second draft. From the beginning of the handbook project continuous help was provided by Office of Education specialists in identifying, classifying, and defining items of information about subject matter--the substantive content of curriculum. The vocational and technical education specialists, as well as the specialists in other areas, have provided invaluable assistance all the way.

The general format of the handbook had become established by the time work commenced on the preliminary second draft. This organizational plan is reflected in the third draft, copies of which are here on the table. Perhaps those of you who have not had an opportunity to examine this draft would like to know something of its organization.

As the handbook is presently organized, and it is possible that some revisions may occur, Chapter 1 provides an overview of the handbook. Chapter 2 is comprised of classified items of information concerned with the organization and administration of curriculum and instruction, and Chapter 3 contains the definitions of the items classified in Chapter 2. Chapter 4 is comprised of the classified items of information about the substantive content of curriculum (the subject-matter areas), and Chapter 5 is comprised of the definitions of the items classified in Chapter 4. Chapter 6 provides many suggestions concerning various uses of the information in the handbook, including (if one may correctly refer to them as such) some simple models which show how selected types of information in the handbook may be related in a meaningful manner. Chapter 7 is the glossary. The final copy of the handbook will have an extensive index.

I understand that in this conference you are most concerned with Chapters 4 and 5 which relate to what is taught. The substantive content of the curriculum has been classified into twenty subject-matter areas. Of these twenty curriculum areas seven are vocational-technical; one is for General Elementary Education and General Secondary Education concerned largely with the self-contained classroom; one is for Differentialized Curriculum for Handicapped Pupils (Special Education); and one is for Cocurricular Activities. The scope of the subject matter treated in Chapters 4 and 5, as is also true of organizational and administrative factors covered in Chapters 2 and 3, includes where appropriate the spectrum of elementary, secondary, junior college, and adult education.

Please permit me to digress for a moment to explain how we arrived at the twenty subject-matter areas. Backup for the seven vocational areas was found in Part 104--Administration of Vocational Education: Federal Allotments to States--Rules and Regulations, (Reprinted from the Federal Register, August 28, 1964), U.S. Department of Health, Education, and Welfare, Office of Education, Washington: U.S. Government Printing Office, 1964. pp. 12339-56. The other twelve subject-matter areas are identified in the publication: Proposed Standards for State Approval of Teacher Education, a project of the National Association of State Directors of Teacher Education and Certification assisted by the U.S. Office of Education, U.S. Department of Health, Education, and Welfare, Office of Education. (Washington: U.S. Government Printing Office, 1967).

As stated earlier, Office of Education specialists provided tremendous help in developing classifications and definitions of subject-matter items for the twenty subject-matter areas in the preliminary second draft. We called these work materials. Then, with the assistance of Office of Education specialists and the executive secretaries of more than 60 professional educational organizations, 18 ad hoc committees of recognized authorities in each area from over the nation were organized and scheduled. Of these, one committee served for both Business and Office Occupations. No committee was organized for Cocurricular Activities; rather, this area was reviewed by each ad hoc committee and counsel has been received from hundreds of other persons.

The ad hoc committees met over the period of June 1965 through June 1966. On each committee were representatives of elementary, secondary, junior college, and adult education as appropriate to the area as well as scholars in the area who were not in education. On several committees there were lay citizens interested in education, and on several committees there were representatives of business, industry, and labor.

Each ad hoc committee was given the work material which had been developed for its selected area and materials from three other areas so that they could note different approaches which had been used for classifying and defining items of information. Each committee had the prerogative to change the classification and definitions of items for its area as the committee deemed advisable. This included adding, deleting, or modifying the classification and definitions.

The work of the ad hoc committees was incorporated into the second draft of Handbook VI. This draft was sent to the members of all ad hoc committees, the executive secretaries of the cooperating organizations, selected State and local education agency personnel, Office of Education specialists, and others. Suggestions for refinements were solicited from all of these people. Copies of the second draft were also sent to the Advisory Committee. This committee was reconvened in August 1966, and it meticulously reviewed the second draft and all suggestions which had been received. Profiting from suggestions received and the counsel from the Advisory Committee the development of the third draft of the handbook followed.

In May 1967 the third draft of Handbook VI was produced in 10,000 copies. It was distributed to all ad hoc committee members, the Advisory Committee, all cooperating organizations, Office of Education specialists, colleges of education, all State education agencies, selected local education agencies, selected libraries, and upon request to many individuals throughout the country. Publishers and enterprises concerned with data processing and related equipment have been very surprisingly interested in this handbook, and requests are being received continuously from them for copies of the third draft. During June and July of last summer, Dr. John F. Putnam, my coworker in the project, and I conducted nine 4-day regional conferences across the United States. In these conferences the conferees reviewed the handbook from cover to cover. All proposals for changes in the handbook content which were seconded and voted upon by a majority of conferees in any conference were recorded as "approved" or "rejected" as the case happened to be. We are now categorizing all conference proposals, ad hoc committee suggestions, and all other suggestions received and sending them back to the ad hoc committees for them to decide whether they want to adopt the suggested improvements and modifications or reject them. These are the guidelines for developing the fourth draft.

You may wish to know something about the rationale for the placement of subject matter in the respective subject-matter areas. All of us know that subject matter has been proliferated so badly down through the decades that almost anything could be classified almost anywhere that anybody chose to suggest. We settled on the genesis of subject-matter as a guideline for its classification. Substantive content was classified in the subject area, e.g., mathematics or Trades and Industrial Occupations, according to where it had its genesis (or origin) both substantively and logically. Another rationale we adopted was that we would use contemporary terminology, (contemporary terms or titles), to reflect currency and expedite communication. It was also decided that definitions, as nearly as possible, would be written in gross form and contain only the salient elements that are necessary to describe the items.

A major purpose of the handbook is to identify, classify and define items about curriculum and instruction useful to and needed by educators across the nation. For the first time a taxonomical structure has been developed for subject matter. I want to call your attention to something that Harold Hand told me a couple of years ago. He said that 30 years ago, and more than 30 years ago, this type of subject-matter information was extremely needed for such activities as research, communication, et cetera. And he said, "Bless you, go to it. It's badly needed." Many of you knew Harold Hand as a highly respected educator. Those of us who knew him were saddened when he passed away last fall. Now, another purpose of the handbook is to relate curriculum and instruction to the present series of State Educational Records and Reports Handbooks.

As an example of what happens in the absence of standardized terminology in subject matter permit me to share some illustrations with you. In a survey of 679 high school programs in 1957-58, 220 social studies course titles were reported and I would defy you to figure out what some of them meant.[2/] Dr. Lauren G. Woodby, formerly a Specialist in Mathematics in the Office of Education, surveyed the mathematics offerings in about 60 high schools two or three years ago. He received nearly 80 course titles and told me that the titles didn't tell him anything. Professor Henderson at the University of Illinois, if I may paraphrase this observation, said that educators for a long time have had a tendency to talk past one another

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[2/] Greer, Edith S., and Richard M. Harbeck, What High School Pupils Study, A National Survey of Scholastic Performance of Pupils of Various Abilities. U.S. Department of Health, Education, and Welfare, Office of Education (Washington, D.C.: Government Printing Office, 1962), pp. 134-36.

using the same term to mean different things or different terms to mean the same thing. Dr. Harlan Hoffa, who was formerly with the Office of Education in Arts and Humanities, said that the proliferation of course titles became so bad when he was teaching art at Michigan State University that students registering at the university for art were requested to bring folios of materials they had produced. Course titles on transcripts didn't reveal much interpretable information. We think that this handbook will help solve some of those problems.

Now, very quickly, what will this handbook do in terms of meeting some specific needs? We think it will play an important part in decision-making, particularly as it relates to curriculum design and development and curriculum review. This can be true when discrete basic data is available for interpretation and hence application. We think it will serve an important purpose in relating to the administrator, the supervisor, and the teacher in clear, succinct terms what actually comprises, for example, Trades and Industrial Occupations, English (Language Arts), Mathematics, and Office Occupations. The director of the department of elementary education in a university was in our office recently. He said that for the first time someone majoring a subject-matter area can take a look at the area and see what it really is. Prior to this extended effort to taxonomize subject-matter it has been very difficult to visualize substantive content conceptually. Maybe this treatment of content will help teachers evaluate what they are teaching in terms of accepted meanings and understanding.

Standardized terminology in curriculum can be beneficial in other ways, too. Can it not provide a means for discreteness in financial planning? An example might be that of determining the long-range cost of improving mathematics teaching and achievement grade level by grade level--based on objectives and needs determined by the board of education, community, administrator, staff, and research data. Handbook VI can serve State education agencies and local school systems in the certification of teachers since teacher certification is tied largely to subject-matter areas which have been identified. The information can be used in assigning teachers, in maintaining records, in exchanging information between schools, providing pupils' transcripts to colleges and universities, assigning pupils to classes, and providing information needed by State education agencies. In this day of data processing this commonly-agreed-upon standardized terminology can do much to expedite data processing and communication.

What criteria did the material included in the Handbook have to meet? One, it had to be by consensus of the people who were concerned with the particular data being considered and withstand review by hundreds of other persons. Second, it was agreed upon through the process of conferences and reactions of many groups and individuals as being needed by local and State school systems. Third, the data was judged as important to local and State education agencies and others. Fourth, the data could be kept as a matter of record with reasonable effort. The general overall rationale of Handbook VI was to employ simple language, simple organization, and the use of contemporary terminology as far as possible.

One great shining highlight that I see coming out of our efforts is this: Vocational Education does not stand by itself; neither does general education. Vocational education People said: "We are looking at education from the point of view that youth are receiving a package of education, part of their education being vocational, part of it being general." When we talked to the acadamationists (the general educationists) they said: "That's terrific! That's the way we look at it too. We want some of our youngsters who are going into pre-engineering and that sort of thing, to get over and get a taste of vocational." So, we have come together here with the general educationists and vocational educationists saying, "We're looking at this as a total package of education for all of the children and youth."

Thanks a lot. It has been good to be here.

Application of Program Budgeting to local school systems; with implications for Program Planning, Budgeting and Evaluation at local and State levels

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When I first looked over the title assigned, I thought the topic would be relatively easy to handle. As I began to reflect, however, I concluded that, as a scholar, I really could not inquire too closely as to what impact planning-programming-budgeting (PPB) has had on either vocational education or non-vocational education at the local level because we really haven't had much experience with it. Those instances where PPB is currently being innovated (in local school systems) represent trial stages. From the point of view of local education officials the evidence is not yet in to be weighed to indicate how desirable or how useful planning-programming-budgeting will be. You are, therefore, forewarned that much of what I have to say is speculative or judgmental.

In my judgment, the potential social benefits which might flow from a successful application of PPB to local school systems and other local education agencies are large and have far-reaching implications. One of the characteristics of what many practitioners would judge to be a significant or successful PPB system is the continuous re-evaluation of on-going activities in light of their contribution to organization objectives. On the other hand, much remains to be done in the education area before some of the more vexing issues in education can be satisfactorily addressed by analysts. Frankly, if education prescriptions to social problems are to be reasonable, technically feasible, and have predictable outcomes, major increments in our knowledge base of education relationships are required.

The smaller school systems, however, may find that a formal PPB system is a "luxury good." That is, an elaborate planning and budgeting system is not economically feasible for very small systems because of the cost involved. Information costs a lot of money and in many of the small school systems it is possible for the leading decision makers to be personally familiar with many aspects of the education program. If a superintendent has one or two schools under his jurisdiction with a few hundred students involved, it is possible for him to be very familiar with what is going on. On the other hand, when there are 20 to 30 schools or more with comprehensive education programs and 15 to 20 thousand or more students, then no superintendent or no board of education member can know what is going on without a great deal of summarized information being brought to his or her attention. All school systems, though, can benefit from careful analysis.

Information is not free! So when someone says it would be nice to know "such and such" about an education program, someone else should also query: "What does this information cost? Why and would it really be worth while?" So with the qualification that I am not speaking about the smaller school districts, I suggest that the potential social benefit from applying PPB to education at the local level is very great. This unverified conclusion is based on an understanding of what it is possible to do when decision makers know how to use the PPB system and have analysts skilled in the art of problem analysis. This conclusion also implies a commitment to continuous re-examination of on-going education programs.

It is to be hoped that the application of systematic analysis to education problems will yield the knowledge that is needed to improve the ability of education decision makers to accomplish their objectives with a reasonable degree of certainty. Having studied education problems for a few years from the point of view of an economist, it seems to me that much remains to be done before the big question that we like to talk about can be satisfactorily answered by analysts. We can now pose the most relevant and significant questions, but we cannot yet answer many of them. As Dr. Rivlin pointed out this morning, we are some distance from the unknown point where these answers can be supplied. Yet for school systems which operate a large number of programs, a more reasonable method of allocating scarce education resources needs to be developed than is now used.

Let me illustrate one of the resource allocation problems facing a federal decision maker, with a hypothetical example.

The Office of Education has several major bureaus which all have very important programs. These programs affect almost everyone in the country, from pre-school education through adult basic education. At some point during the planning cycle, the Commissioner of Education is informed by the Bureau of the Budget and the Office of the Secretary (DHEW) that the preliminary decisions for the next Federal budget imply that the Office of Education will be allotted, say, 4 1/2 billion dollars. Suppose next that the Commissioner sends out the following call to his bureaus: "What would you like to do over the next five years? What are your main objectives?"

In this hypothetical example responses to the Commissioner's call might be something like this. The Bureau of Higher Education reports: "What we would really like to do is to be able to provide universal higher education; ideally, we would like all of America's qualified youth to be able to exercise their higher education birthright. At least we would like to provide for universal education for two years beyond high school." Ask the Bureau of Elementary and Secondary Education what they would most like to do, and the chances are they might respond by saying: "We would like to provide real equality of educational opportunity to every child. We'd like to have every child brought up to at least certain age-grade levels of educational proficiency." Ask the Bureau of Adult, Vocational, and Library Programs what they would most like to accomplish and the reply might be: "We would like to provide universal vocational and occupational training to all high school students so that when they graduate from high school, all will have salable skills. And we would like to make continuous occupational training available to all adults who want it." Finally, Bureau of Research replies: "What we want is to finance large scale research and development projects in the hope of obtaining massive break-throughs in educational technology, to find effective ways of reaching and teaching people we have never reached before."

Total the annual cost of achieving these responses up (to the extent that we even have costs of accomplishing these objectives) and the total would probably come out somewhere in the vicinity of 15 to 25 billion dollars or more per year. It is, I submit, not very much help for the Commissioner of Education to know that his agencies or his bureaus are currently requesting 15-plus billion dollars when he knows that the best he can currently hope for is about 4 1/2 billion dollars. For this and other reasons, the Commissioner needs the assistance of a staff which can assist him in looking at the various program areas and in weighing the relative importance of each from his point of view. The Commissioner also knows that he is not the final decision maker: there is a Department of Health, Education, and Welfare; a Bureau of the Budget; a President; a Congress; and other articulate education spokesmen.

For somewhat similar reasons, one of the "panel reactors" noted this morning that since this State Department was reorganized, subject matter specialists no longer direct the major analyses and make major recommendations. It seems to me that if you have competent personnel working for you in each subject matter area, each individual ought to believe that he is working in the most valuable area of your whole operation; he wants to see it expand. And that's fine for him; he ought to do the best job that he can within his area of specialty. Yet as a State director or as a local school superintendent, it is not very useful to know this in isolation of what other areas of the curriculum can contribute; so you need several groups to look at issues in various ways. You might have one analytic group which looks at vocational education programs within a school system which tries to work out the relative importance (in some sense) of the various activities which go on under the title of "vocational education." You might have some other curriculum study group working with and analyzing non-vocational areas. Finally, the top decision maker should have a staff which helps him try to identify and weigh all of these factors because ultimately he must make resource allocation decisions. And we can only hope that the more pertinent information that he has which is well-organized, the better the quality of decisions eventually made so that students and society benefit.

In examining education processes and objectives, at least when we are able to distinguish facts from beliefs, we find that we do not know much about vocational education: we do not know very much about most forms of education in terms of "input-effectiveness." We do not know what 1 billion dollars more in pre-school education would buy us or whether or not it is educationally worthwhile in the long run. We really do not even know how many kids participate in compensatory education programs. This may seem rather strange to some of you, yet some recent sets of figures concerning Title I (ESEA) show that depending upon whose (official or unofficial) figures you read, there were 9 million kids affected by Title I, there were 8 million kids affected by Title I; another estimate is 6 million, and the last estimate is 4 million. So all we really know about the volume of Title I student participation is that probably at least 4 million children were helped but not more than 9 million; 8 million students appears most likely. Now these figures are not very accurate as some students may have been counted more than once. And it does not help us to go down to the local school system level because in many cases, for a variety of reasons, local school systems have not been too interested in collecting the kinds of data required to answer certain questions. The relevant information will only be collected by mandate or by showing local decision makers how this information might help them do a better job.

In the past, vocational education and the vocational curriculum has been partially isolated from other educational decisionmaking in many instances. There has been a discernable tendency in many school systems for vocational education and associated academic curricula to be completely differentiated from the rest of the educational system. At the state level, consequently, planning to accomplish state objectives may sometimes appear to be unrelated to real levels of decisionmaking. States tend to be concerned with a careful sequencing of vocational education courses through time for both in-school youths and adults. Here vocational education is viewed as a continuum to be coordinated from the lower grades through post-high school institutions.

Yet vocational program initiation and operation responsibility is usually vested in local school districts--not in State departments of education. Thus, State programs and budgetary decisions are often the derivative result of decentralized decisionmaking by local school districts. Desired State objectives, therefore, are not frequently realized as the result of conscious State policymaking and program implementation. For many State agencies one of the major problems is: "How do you initiate action by the local initiators?" This is often handled by State prodding of local education agencies.

And, of course, many of the trends noted above are being changed now--there seems to be a tendency to more closely integrate vocational education with the broader concept of occupational education, and integrate the latter with the rest of the educational curriculum in many school systems.

Variety is one of the characteristics of education today and, as you so well know, there is considerable variety within the vocational area. In some States, major vocational education decisionmaking authority is lodged in State Boards of Vocational Education. In other instances, there may be essentially independent and entire education programs that are vocationally oriented and operated parallel to general and academic programs. In other cases, vocational education is viewed as part of the curriculum in comprehensive high schools. Then, of course, there are the post-secondary and adult education activities. So the implications of adopting a PPB system at the local level will depend in part on the specific organizational forms and inter-governmental relationships.

Why should or would a local school system innovate a PPB system is a reasonable question to ask? There are several reasons why a local education agency might adopt a PPB system, and many of them you have already been made aware of. But some of the State-local implications of local use of PPB will depend upon how a local school system comes to innovate PPB.

(1) Local systems may adopt PPB as a result of a State decree. A state agency such as a State Board of Vocational Education or a State Department of Public Instruction may insist--either through existing authority or by obtaining new legislative authority--that all local school systems or all Class A school systems must begin accounting for their operations within a program budgeting framework. Needless to say, unless careful groundwork convinces the local administrators that PPB can be very useful at the local level, this may become just one more routine reporting system from their point of view.

(2) A more interesting possibility, at least from the local point of view, is a case where the decision to innovate a PPB system is reached locally. Again, it is possible for a municipal government or a local board of education to impose PPB on the local school system. This may occur as the good citizens and local municipal officials continue searching for ways to wring more output--however defined--out of the schools as an alternative to giving schools more resources to use in educating our youth. This desire may, at least to some school administrators, recall past experience with the impact of scientific management on the schools of several years ago. This was what Callahan referred to in his book, Education and the Cult of Efficiency. In the present context one might read, Education and the Cult of Cheapness.

(3) A third and still more interesting, while unfortunate reason why a local school district might apply program budgeting techniques in its operations occurs when misinformed school officials request the use of PPB. This may be the case where local school leaders--harried by what seem to them to be almost insurmountable problems, embrace PPB as a solution to their decisionmaking problems. They may have heard that systems analysts and economists using various sophisticated devices such as cost-effectiveness analysis, cost-benefit analysis, cost-utility analysis, or operations research methods can tell them how much to spend on elementary and secondary education; and within secondary education, how much to spend on vocational-technical and academic and general education. It really would be wonderful if analysts could tell local decisionmakers what they should do. Or would it?

After setting up a PPB system, however, these schoolmen will find that PPB does not solve their problems. It only serves to focus the issues more sharply. They will find that they just cannot meaningfully substitute technical expertise for the need to exercise their own judgment. If these officials try to engage in statistical decisionmaking or let analysts perform their job, undoubtedly they will be relieved of all responsibilities by their employers for having done a very bad job. Analysts and information systems help policymakers and decisionmakers better understand issues and the implication of alternative proposed strategies. But analysts and information systems do not solve problems unless decisionmakers literally abdicate their responsibilities.

(4) The last type of case I want to bring to your attention this afternoon is the case of the school administrator who is always seeking tools to help him do his job as a professional entrusted with the education of the area youth and adults. He will want to know how PPB might help him, how technically feasible is the system, and how economically feasible the PPB system is? In other words, he will want to perform a cost-benefit analysis to determine whether or not the advantages of using PPB are worth at least as much as or more than the disadvantages and costs of using PPB.

In larger school systems, administrators will become aware, at some point, that PPB is one more of many attempts to improve decisionmaking in non-market oriented or non-profit oriented organizations. These administrators are probably vitally interested in finding or discovering more effective ways of using the resources at their command. They probably believe, or will come to believe, that the school system will use its limited resources more efficiently when budgetary decisions are made in light of educational program and educational output implications, and after reviewing carefully organized and relevant information, for multiple-year objectives.

One of the problems a policymaker has had to face has been lack of information. There is very little known about educational relationships--about how what goes on in the school systems is related to educational outcomes, so we proceed on the basis of all kinds of rules of thumb. What the optimum average class size is nobody really knows. For most purposes we feel that 40 students per teacher is probably not good. Many educators would like average class sizes of 20 or less to make it easier for the teachers to teach. But it is not clear that a major objective of the schools is to make teachers' teaching jobs easier (although this might significantly affect teacher recruiting).

Depending upon how well it is done, the application of PPB within a local education agency may or may not lead to substantive implicatiions--for vocational or non-vocational education--at either the State or local level. Substantive implications are most likely to arise only in those instances where program budgeteers are extremely capable and able to engage in their art. In this event, some conflict among various interest groups is, I submit, an inevitable by-product of a successful planning-programming-budgeting operation. At the other extreme--an extreme devoid of substantive issues caused by the innovation of program budgeting, the net effect may well be simply renaming on-going activities with a new program budgeting jargon. In between these extremes of highly successful and highly unsuccessful local applications of program budgeting is an entire family of possible sets of implications of PPB to local and State education agencies.

The successful application of program budgeting to local education agencies can be expected to cause problems and lead to changes of both an educational and economic nature. These problems will derive from a better understanding of the educational and economic implications of current operations and policy changes which result.

In the rare case where no changes in operation are desirable, after innovating PPB, only one of two conclusions can be drawn. (1) The local school system is already doing the best possible job in light of the state of the instructional arts, its ability to obtain financial support for the schools, and the educational needs of the local area. That is, any reallocation of the resources which any school system uses among all of its activities would lead to a less desirable education posture. (2) Or, alternatively, program budgeting and analysis has been unsuccessfully applied and is only being used to rationalize whatever was done in the past. In a world of imperfect knowledge, we usually take it as a "truism" that with better information, more efficient resource-use is possible.

So you should expect the successful innovation of PPB to develop some conflict within a local school system and between local school systems and the States. There will be various groups who will feel that their own traditional interests are in some sense being threatened. Some of these people and groups will in fact be threatened; others will only be threatened out of ignorance as to what the PPB system implies. It does imply that analysts will come around and ask: "What do you say you are doing? Show us! Have you been doing what you say you have been doing? If not, maybe you ought to reconsider what it is you are both doing and say you are doing."

With PPB analysis, then, you should expect some conflict to be introduced within the local school systems. If it's done well, you should also expect the generation of additional conflicts--at least intellectual conflicts--between the local school systems and various State education agencies. If analysis is well done at the local level you may find that local objectives do conflict with State objectives. It may suddenly occur to you (you are probably already aware of this) or to your analysts that you have been pursuing multiple objectives all along, and that you really are unable to find any single unique hierarchy of objectives. You may even find that the major objective of one small school system runs completely counter to the State objectives.

Let me give you a completely hypothetical, though plausible, example. Suppose that in some midwestern State two kinds of agricultural products are being newly harvested or produced in a given geographic area, and therefore that the local school system wants to expand its agricultural occupations training program. The local school system wants to enlarge its agricultural vocational offerings--a legitimate consideration providing they have analyzed alternatives and have decided that this is a worthwhile use of scarce education resources within the school system. The State, however, may have decided that the State should gradually phase down the relative importance of agricultural vocational occupation education. Here you have a State objective which is to reduce involvement in agricultural occupations, shifting its emphasis toward other areas; one of the local system's objectives is to expand in this area. Both are right and if you have sufficient flexibility in your planning, and do not get too "wrapped-up in looking at only one or two variables - you're willing to look from many points of view - the objectives are compatible with each other after all because the State objective is to reduce aggregate State involvement and the local one is to do whatever it thinks it can do best for the local area. What this means to a State Department of Vocational Education is if you expand in one part of the State, you have to be contracting enough to more than offset this in another in order to accomplish the State objective. It also implies that if the local analysts have done their job well, they have looked at the facts and so has the State Department of Education.

On the other hand, it is still possible, given that we do not know everything that we need to know (we do not even know what it is that we need to know in its entirety) it is still possible for State analysts and local analysts to evaluate the same data and come up with different conclusions. The State director and relevant decisionmakers ought to welcome these possible conflicts because of what it says to them: "To the best of the State-local combined analytic capability, it is not really evident which is right or which is wrong." Here is where the key decisionmakers and the people who advise and assist them with particular skills need to bring informed intuition to bear on the problem. This is a problem in which factually we know that we do not know what to do that is revealed by the individual analyses. The results of both analyses are contradictory. What the studies suggest in this case is: "Do not rely on either of the two analyses as a basis for making decisions."

Given that State-local conflict might develop, it may turn out that what local school systems want to focus on are not the same programs that States want to consider. If States want information the local school systems do not find useful, then States should pay local school systems to provide it. Similarly, if the Federal government wants information for its purposes that States do not find particularly useful, or are not required by law to supply, the States have every right to say to the Federal government: "Pay for it." If another level of government has to pay for information, it will quickly decide whether it still wants the information. Information is expensive and requires time for collection, so one never has all of the information necessary to make perfectly informed decisions.

At this point, let me pose a few of the kinds of questions I think a local school administrator should ask if he wants to run a better operation. Many school administrators ask these questions and some even claim to know the answers. In other cases administrators say they know this information, but if you ask to see it, they respond saying: "Although the information is not readily available, we know what it is because we have looked." I think that any local school system really should be able to say--to ask of itself and answer:

(a) What share of a school system's resources are going into occupational education? Into academic education? Into general education? What differences, if any, are there among students who spend most of their time in one of these major areas of the curriculum?

(b) How does the cost and quality per student for instruction in various grades vary from school to school and within major areas for each subject?

(c) What share of resources by program area is used in special programs designed to assist the educationally disadvantaged? After a year of participating in compensatory education activities, are these students less educationally disadvantaged?

(d) What can the average student acquiring entry skills for occupation A reasonably expect to earn over his lifetime if he remains in the local labor market? If he moves within the State? If he moves out of State? How do earnings from this occupational level vary from firm to firm and from industry to industry?

(e) What are the chances of obtaining a job in this occupational cluster? How long does it take to enter?

(f) Which areas of the T & I curricula should be expanded most rapidly? By how much?

These are the kinds of questions that Program Budgeting and systematic analysis can help to answer by providing information and analyses of implications.

During the cost-benefit study aimed at evaluating Title I our staff found that school systems did not know how much was being spent on compensatory education in each school in most school districts because their records were not organized along these lines. Local records tended to be organized along certain kinds of other useful organizational lines for local uses or in terms of financial accounting requirements laid down by States.

Knowledge of system-wide averages is just not adequate for decision-making. To illustrate, assume that we are spending an average per general education student in high school of $530. Next, pretend that we assert that we are spending that $530 per student in all the schools. Now let some scholar or analyst come in, pick out any school, and zero in on it. He may find that we are spending anywhere from $300 per student to about $700-$800 per student depending on which school is selected. The observed variation in expenditures is a very useful piece of information for a school administrator to know, especially if he is operating any compensatory education program. An outsider like myself visiting a school district might undiplomatically remark: "You claim you are operating a compensatory program. Are you doing something in addition for these kids? Please show me the program. Show me what you are doing. Do you have detailed records which will give comparative costs?" You may find in a system where the average expenditure per pupil in a local elementary school was $400 per pupil that as a result of initiating a massive compensatory education program in school A that you are now spending $300 per pupil. In this case, it could be argued that what these kids are being compensated for, is what was already being expended on the other kids in the system. Sure, these students in school A are a little better off than they were before, but yet there remains some differential treatment. If that is what the explicit local objectives are, okay; the point I want to make is that usually this information is not known.

These are the kinds of questions that a PPB system helps to answer. But PPB does not tell you what to do. I think some zealous people have alleged that PPB can solve anybody's problems. In my judgment, that never was the point of PPB. The purpose of PPB, as I see it, is to make decisions more difficult to reach by asking all of the "dirty questions", and by asking what we factually know and what we do not know. To what extent are decisions made on the basis of faith? I cannot think of many knowledgeable people who are naive enough to believe that any decision was ever made solely on the basis of the value of a "cost-benefit ratio". Actually, I suspect that if you were to put it to the test that you could not even find the decision makers. You will know that certain individuals were involved with certain events and that at some point something happened. Generally you do not know who the decision makers are; you dump information into a decisionmaking process. In some of the PPB literature, what is actually described is grossly oversimplified. When well-done, PPB is really a very flexible operation. But some of the PPB literature can lead you to the conclusion that what is being advocated is statistical decision making. The illusion sometimes conveyed as fact is that if analysts could just get the right data, they could solve all our problems. Well, analysis does not solve problems!

Analysis informs decisionmakers. It helps clarify what is implied by alternative possible decisions. If you could solve problems statistically you would not need decisionmakers; in this crazy world you would not need people who are specialists in skill areas. In this event, all you need is for somebody to once write the grand computer program, and from then on you just dump the data into computers.

You know and we know, through painful experience, that most programs have multiple objectives. As soon as groups attempt to organize a set of goals, they find perfect agreement impossible. Let each of three groups specify five goals for some project. Three of the goals may be common, but two of the goals are different among all groups. The groups have two options. They can sit and argue for the next 10 years about which group has the right set of goals. Or they can conclude, these goals are important to various groups for various reasons; therefore, it is desirable to design a flexible method of looking at programs so that the groups can explore the implications of decisions within the context of these various objectives.

For example, some of the Congressmen who have supported Title I (ESEA) think that the purpose of Title I is to aid the educationally disadvantaged. Another group of Congressmen believe that the purpose of Title I is to aid the educationally disadvantaged. Another group of Congressmen believe that the purpose of Title I is to open the door for Federal aid to private and parochial education. This group wants to know: "How much of the money went to non-public schools?" Still another Congressional bloc sees Title I as general aid to urban areas and the price you pay for general aid to urban areas is compensatory education for the entire nation. This bloc wants to know how much the big cities are getting and would like to know whether big cities are really using the aid for compensatory education or whether the cities are using Title I as general aid for the entire school system.

It should now be obvious that a sole objective of Title I, which we are attempting to evaluate, can not be unequivocally stated. It does not help much to read the Act; it does not help much to talk to curriculum specialists. What the Act says is that we are going to help local school systems with special problems meet the particular needs of educationally disadvantaged children in those districts which have large concentrations of poor people. Helping the disadvantaged in one district means free lunches. It means, in another, building swimming pools. It means in another, buying computers or buying pupil information systems. Other school districts operate special educational programs.

The last subject I would like to discuss is purely technical. When multiple program objectives are involved, and no one knows how you can convert the different objectives into equivalency--how you can convert the advantages of pre-school education into equivalent advantages for auto mechanics--then there is no statistical device, to my knowledge, that currently exists which permits you to simultaneously take into consideration multiple objectives. Such a statistical technique does not now exist. We do not know anything about how to do this.

Conventionally, multiple objectives are approached through what is known as sub-optimization. Sub-optimization requires breaking a problem into parts and forgetting about everything else; then you say, "Find the optimum solution for this part of the problem." You then take another piece of the problem, forgetting everything else, and optimize that. We know from long experience in other areas, in non-education related areas, for example in military weapons systems, that when you sub-optimize and then put everything together, the total is not what you wanted. We know in general that if you sub-optimize, you prevent yourself from ever optimizing except by chance. We are quite sure that the global optimum, the best airplane or the best school, for example, is quite different from the sum of the best parts when you put them all together.

This means nothing more than that analysts should be rather humble creatures. They have to be very careful. They can be of considerable aid providing they do not get to the point where they tend to brainwash themselves and become rather biased and begin to develop loyalties to certain kinds of interests and lose their objectivity.

I think on balance that local school systems, especially big city school systems, will find that a good analytic staff would be of tremendous aid. And most PPB practitioners would say that the biggest value which comes out of analysis is the interaction between the analyst, decision maker, and the subject matter specialist. This is where the big advantage of PPB is,and in thinking of the relationship of inputs to outputs.

In DHEW we sometimes like to count our PPB successes in terms of poor proposals caught before reaching the point where, for political reasons, it is no longer too relevant to analytically consider the question further. The initial implication of one particular proposal which was near the final processing stage, was that a program which was supposed to eventually help all of the disadvantaged kids attend college who were kept out because of financial reasons would cost $396 million the first year. The way in which the program was set up, by simple costing it over future years, estimating probable attrition rates and some other factors, at the end of the 5th year the annual cost of this program was over $4 billion. Total annual spending is only about $16 or $17 billion in higher education. And the analysis revealed that the proposed program mostly aided middle-class kids who would go on to college with or without this program. These are simple kinds of analyses and frequently they are very valuable.

Let me conclude with a few more comments on resource allocation. From an economic point of view, any institution which does not have unlimited access to resources--financial, human, physical or intangible, should be guided by one of two criteria in the use of its scarce resources.

(1) Any predetermined goal should be achieved at the lowest possible cost. At this point, no reallocation of scarce resources among institutional activities permits goal attainment at a lower cost in terms of resources used.

Or, alternatively;

(2) Any given level and combination of resources should be used in such a way that yields the greatest possible contribution to organizational objectives.

The first alternative which focuses on predetermined goals implies a cost-effectiveness analysis, and this undoubtedly will continue to be the most frequently employed analytical device. This is a useful approach when the binding consideration is a given level of output. The second alternative implies a cost/benefit analysis and would require estimating valid incremental benefit and cost ratios for major educational activities--and we currently lack the capability to do this in significant detail for a variety of reasons for vocational education.

An organization's budget, of course, embodies the plans of an organization. It is the document which sets forth a proposed set of decisions to govern future operations. The budgetary process should extensively involve the administration and curriculum specialists or subject matter specialists from preliminary analysis and planning up to the point of the final decisions. Otherwise there is no way to convince affected interested groups that their insights and positions have been carefully analyzed.

Cost/Benefit--Cost/Effectiveness

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I welcome this invitation to be present at this conference, particularly since the invitation comes from the white-collar vocational educators to a blue-collar university professor.

I was asked to report on a study of cost-effectiveness of vocational education. This is a joint product of four people. It is a highly technical study and I want to mention the three other people invovled: Ten-wei Hu, Maw Lin Lee, and Ernst W. Stromsdorfer. They have all played a very significant role in the conduct of the study.

This past weekend, after a six months lapse since the issuance of the preliminary report, I decided to reread the report. I now wonder how we had the courage to issue it because the issues and problems are so technical and so difficult. I am not saying we found the answers but I do think we made a significant approach to them.

I want to take this opportunity to make a few comments about several things I heard this morning which are closely connected with cost-benefit analyses. Despite all the limitations of cost-benefit analyses, and I am the first to concede that they exist, I would suggest that if you employ this approach as a way of thinking about a problem, even though you do no quantifying, you are way ahead of the game. At least the approach forces you to begin to think of what you are trying to do and what are the costs of doing it. And that is progress! Many of us in our own work stop and ask ourselves: What are we truly trying to do? What does it cost us? What are the alternatives? Are there better ways of doing it? If you get nothing else out of this exercise but just to think in these particular terms, I think we have made great progress. We fail to recognize the importance of constantly looking at the way in which we are doing things today.

We have really two severe limitations in thinking in these terms: One is the limitation of resources in the face of almost unlimited needs; the other limitation is the very institutions themselves which we have designed to carry out these objectives. Regardless of whether it is a university, an employment service, or an education system, all of these institutions resist change, refuse to look at what they are doing, assume that what is being done is satisfactory, and usually insist that if they only had more money they could do more of it.

There is a very simple rationale for conducting cost-benefit analyses. In the private sector of our economy, we do have some element of constraint around our operations. Presumably private business has as its objective the making of a profit. The market will determine whether or not the business firm can survive. If business produces goods or services which people do not want, they will go out of business. If consumers are not buying the product because it is very expensive, businessmen are forced to seek other ways to produce that product in a more efficient manner. The market, therefore, has a significant impact on the private sector. But the interesting question in the public sector is: Who imposes a constraint on those activities in the private sector? Who decides whether or not a school is turning out a good product? Who decides whether or not a school is acting efficiently? Who decides whether or not vocational education is putting out a good product? Who decides whether it is efficient or inefficient? What information do we have? What constraints do we have? Vocational educators say: "We are going to have more students! We need more money! We will do more of the same thing." We must find some means by which we could try to find the equivalent of a market mechanism which would control those who have the responsibility of spending money and using resources to achieve certain objectives. It seems to me that the cost-effectiveness approach--or program planning, or systems analysis, or operations analysis--is the equivalent of imposing on these public institutions the market constraints. Someone raised a question about political decisions and their relationship to cost-benefit analysis. It seems to me that when we determine the real cost of political decisions, we will have fewer political decisions. For example--if spending too much money on higher education means that you will have less money to spend on vocational education, the cost of higher education is less vocational education. Or, if you are spending too much money on vocational education for youth, the cost of spending that money may be an inability to spend money for older people who also have some needs. You can make the person who is making this political decision decide in terms of the real costs. Spending money for higher teachers' salaries means that you may have less money for project "Head Start." Those are the real costs. All political decisions have real costs. This kind of approach tells a politician the real cost of the decision, not in dollar terms, but in terms of the alternative objectives that you could have achieved with the same resources.

One final comment with respect to research which takes time. Someone said that we cannot wait 15 years to get an answer. But that is what people said 15 years ago. If we had not listened to them 15 years ago, we would have had the answers today. Let us start getting answers now in 1968 and by 1983 we may have some answers. I see no alternative but to start now. A famous story told by President Kennedy is pertinent. A man called his gardener and asked him to plant a tree tomorrow. The gardener replied that the tree would not bear fruit for a hundred years. In which case the man said, "Let us plant the tree today." I am saying the same thing with respect to research.

Now given all the limitations that you have heard about cost-benefit analysis, you could raise the question, "Why carry on such studies if there are many uncertainties and if it will take a long time to come up with some of the answers."

We have no alternative but to keep constantly trying to find a better product. For example, there have been some previous cost-benefit studies from which we benefited in our particular study. I do not want to be critical of these other studies because they represent a start. We discussed these studies with these people and explored their methodology. In comparison with one study on cost-benefit analysis, let me list very briefly how our report improved on it. I assume that when our final report is published that someone else will improve on our study. But unless you begin tackling these problems now, you are never going to solve them. There is no point devoting your time bemoaning the difficulties of a cost-benefit study. In a previous study made on cost-benefit, the investigators looked into the immediate post-graduate experience. Our study was concerned with five years experience after graduation. Five years is better than immediate, but it is not as good as 15 years. The previous study concerned itself with entry wage rates. We were more interested in earnings, which we thought were a better criterion. Previous studies did not control for socio-demographic factors: age, race, sex, father's education, etc. But we used multiple-regression techniques, which allowed us to control these factors which might influence the outcome.

Other studies ignored what we call the interdependency of some of the variables. Another study seemed to imply that it might be cheaper to train people on-the-job rather than put them through vocational education. We at least want to explore the question of whether or not on-the-job training may not in the long run be more expensive than vocational education. And, finally, even if you found, as a result of a study of benefits and costs, that the ratio is low, remember it is a ratio which has output in numerator and input in the denominator. A low cost-benefit ratio does not necessarily mean you should abandon the program. Maybe you could make it more efficient and lower that denominator a little bit (reduce the cost of the input). This is a factor that ought to be considered. Finally, in connection with our final report, in contrast to the preliminary report, we do plan to develop a cost-benefit analysis of dropouts from the curricula. We are also going to concern ourselves with on-the-job training costs. We also plan to explore some of the non-economic criteria, like voting behavior, community participation, and income aspirations.

I want to introduce you to some of the problems in conducting a cost-benefit or a cost-effectiveness analysis, not so much to indicate to you the difficulties but rather to suggest the necessity for utilizing a technician. For example, from a conceptual point of view, when we examine the question of cost, we recognize and we try to distinguish among them that costs may be different, depending on whether you are talking about an individual, an individual community, or about society as a whole. Now depending on which one you are talking about, you would include certain costs, and exclude others. And you have to be very careful to distinguish among these three. In our study, we were interested primarily in cost to society.

We tend to forget that one of the costs of going to college, is the earnings you could have made if you were not going to college. However, it should be kept in mind that, if you have a compulsory education law and a youngster cannot work until he is 16 or 18, you cannot count foregone earnings because he would not have had the opportunity to earn any money. There are, in addition, not only the costs of supplying education but also the cost of receiving it.

In view of the fact that schools normally buy property and goods and do not have to pay a sales tax, what they are buying are goods at a lower price than the private sector would be paying because of the tax. Therefore, you encounter the question: Do you adjust for the tax? If you adjust for the tax, you run into the whole problem of the shifting and incidence of taxation. Similarly, there are serious conceptual problems with respect to benefits. One question we raise is: Do you want to look at wage rates or do you want to look at earnings as the measurement of the output? We recognize that regardless of the curriculum that someone might take, earnings might be a reflection of the native ability, the motivation, and other personal characteristics of a student. Remember we are looking for benefits that can be ascribed to a particular curriculum. If these are benefits that he would have received anyway, you make some effort to hold constant these variables that could influence earnings over and above the particular curriculum. It should also be kept in mind that the earnings of individuals are affected by the supply of and the demand for certain types of occupations and may be unrelated to the curriculum. One is trying to isolate the benefits that could be truly ascribed to the curriculum and not ascribed to other things. And this, of course, is a difficult sort of a problem.

When you deal with benefits, say to a community, we should recognize that the benefits to a community or society may not be the summation of benefits to individuals. If a particular curriculum does yield extra benefits, in the form of earnings, then these extra earnings may result in higher taxes paid to the federal, state, or local governments. These extra taxes would not have been paid if the students did not have this kind of a training. These people may also be more productive. Do we assume that the wages will reflect this increased productivity? You may discover that a particular curriculum results in a lower level of unemployment which in turn might mean lower expenditures in the form of unemployment compensation, etc.

A curriculum might result in better citizens in the form of fewer people being on public assistance or less juvenile delinquency. All of these are benefits which one has to take into account. The society as a whole might benefit simply by having new knowledge. New knowledge may mean new technology, new ways of doing things. How do you go about measuring all of these things? Both from the cost side and on the benefit side you have some serious conceptual problems. When we turn to cost-effectiveness analysis, as distinguished from cost-benefit analysis, we are concerned about certain non-monetary outputs. And as I indicated earlier, we shall explore those questions further in our final report.

In any kind of cost-benefit or cost-effectiveness analysis you are concerned with costs and benefits over a period of time. There is a very simple proposition that a dollar today is worth more than a dollar in the future. Or a dollar in the future is worth less than a dollar today. And so we encounter an interesting problem of the interest rate.

You want to do some discounting and here you run into the question of what interest rate do you use for discounting purposes? We do know that costs and benefits have what we call time profiles.

Now there are various ways in which you could look at costs and benefits in order to make a judgment about the desirability of a social investment. For example, you could look at the question of "How long does it take to get a pay-back for the initial cost?" If an investment costs $200, and you get an annual pay-back of $50, obviously it takes four years to get your cost back. If you have another program that costs $1200 and you get an annual pay-back of $200, it takes you six years. If you want to use the criterion of how long it takes to have a pay-back, obviously you prefer the former to the latter. However, if you start exploring the question of what we call other techniques of computation such as benefit-cost ratios, or the net expected present value, or the ratio of the differences in marginal benefits and differences in marginal costs, you may find that you are getting totally different results. Although you might obtain different results, it does not necessarily follow that one technique is better than another. It may well be that, under one set of circumstances you want to use one method; under another set of circumstances you might want to use another. For each of these methods there is extensive literature and a bibliography, in which the issues are debated and discussed, pro and con.

Now let me give you some notion of some of the interesting problems encountered in the collection of data.

First, let me state again that we are interested in obtaining only the social costs. We had some problems of getting current costs. We had problems of getting capital costs--building sites and equipment. We had this problem of taxes. We had this problem of costs from non-school system support. We have problems of computing foregone earnings. We now have problems of job search costs and we have problems of on-the-job training costs. In some of these instances (maybe as a result of rationalization), we eliminated the need to obtain these data. For example, as I mentioned in the case of foregone earnings, we do not have to obtain these data because people are compelled to go to school. Or you could assume (as we did) that if they were not compelled to go to school, that there is no reason to believe that the foregone earnings of the people that went through vocational-technical curriculum would have been much different from those who went through an academic curriculum.

There is also the joint cost problem. You could ignore a joint cost problem because one is interested only in the extra cost of educating another youngster in vocational education and the extra cost of educating another student in an academic curriculum. So joint costs, from our point of view, could be ignored.

Now, let me refer briefly to the types of data we obtained from different cities. We tried to get data on the average daily attendance, the number of principals, the number of teachers, the number of secretaries, salaries for these people, textbook costs, costs of stationery and supplies, maintenance, other operating costs, and some notion of original construction costs. We tried to obtain these for individual programs.

In trying to categorize students we encountered great difficulties because, as you know, all ways and means are used to educate people in vocational terms. We set up five categories; this was the best we could do. We had an academic (a college preparatory) group, we had a general group, we had a group called vocational-academic, we had a group called vocational-comprehensive, and we had a group called vocational and technical. Vocational-academic was a combination with a dominance of the academic.

In trying to explain benefits, for example, we used several independent variables: the age of youngsters, sex, race, marital status, the city of graduation (presumably to reflect the industrial structure and composition of the community), their IQ, and how much education the father had (which we assumed was related to his occupation, his income, and his social status). We had to find a surrogate for the father's occupation, income, and social status, and we assumed that the amount of education the father had did have some relationship to these particular factors. In this way we were able to make a computation, through multiple regression techniques, of the benefits as a function of these variables, trying to hold these variables constant, and trying to distinguish between the vocational and non-vocational benefits. We also were looking for the extra benefits of vocational-technical education as compared with academic or the non-vocational education. I want to stress that word "extra." We assume that current cost would be a function of the average daily attendance of vocational-technical education, the average daily attendance of non-vocational, the ADA over the number of teachers (which was a surrogate for size of class we assume it had some relationship with quality), and the year of the remodeling of the building (which we assume would reflect maintenance costs).

We obtained information about output, in terms of stability of employment during a five-year period (the proportion of time that a person was employed). We circulated questionnaires--for the preliminary report--among 1600 youngsters in two cities, involving these five curricula.

On the basis of our analysis we find that there is a payoff for vocational education. That is a preliminary conclusion and we reserve the right to change that in the final report. Prior to the study, vocational educators, recognizing that vocational education was costly, would ask us: Why do a cost-benefit study? Why do you pick on us? Are there not other areas of public expenditures in which you might be interested? There is a reason why they were very concerned. The results might show that there was no payoff. But now that we show payoff they will probably argue that we ought to spend more money on this type of analysis.

If you assume that all the assumptions we made are correct, all the computations are correct, all the data we collected from the school systems are correct, and all of the benefit measurements are correct, does it necessarily follow that we should spend more money on vocational education? What we did was basically to study those youth who were in vocational education and those who were in the non-vocational curriculum. But one must always examine the alternatives. Some of us who have been interested in vocational education these past few years think that there is a group among a student body whose needs are not being met by any curriculum. This group is not disadvantaged. It is the one that Marvin Feldman usually refers to as the group which finds education not relevant to the needs. These youth do not fit into the academic curriculum. They cannot enter the vocational curriculum because there may be limitations of space or they are screened out because they do not have certain abilities. There is nothing for them.

We do not know what would happen if we took the extra dollars and invested in them. We would like to explore that area as well.

I would like to refer to the recent report of the Advisory Council on Vocational Education. Everyone reads it quite differently. Some of you read it to see what it said about the good job being done by vocational education. I read it the other way. I only read it in terms of what the Report said in terms of what was not being done by vocational education. I read it this way because I would like to urge that some consideration be given to this third group of youngsters whose needs are not being met by schools. When Carl Schaefer and I issued a report on vocational education about two years ago, we were told that our data were two years old. This could be said about any research study you want to destroy. There is a time lapse between the collection of data and its publication. It is always too old, and the implication, of course, was that if we had only been up-to-date, the story would have been different. Here is the report of the Advisory Council on Education, issued two years after our Report, saying such things as: The growth and enrollment of vocational education basically includes persons not originally counted, namely, the business occupations; the breakthrough, the Report says, for training more persons for more occupations is yet to come. The Report in 1967 confirms what we said in 1965. This report of the Advisory Council states that there has been a continuation of existing programs. That is what we said two years ago, but we were told that we were two years too late. We were told that there were a lot of new programs. We had indicated, and so does the recent Report, that administrators still regard the programs for youth with special needs as being remedial and not the responsibility of vocational education. This recent report says that the second main objective of the Vocational Education Act of 1963 was to serve youth with special needs, and I quote precisely, "this has hardly been touched." This is what we said two years ago. This Report is critical of teacher education by occupational categories, hinting that we might want to get rid of some of these occupational categories. We tried to say that, too, but we ran into some problems. What I would like to suggest is that vocational education assume a leading role in the education of all of the youngsters in the society. Vocational education should be looked at not as an end in itself (for which you train people for specific skills), but as a way of learning. This is where the great challenge, I think, exists with respect to vocational education. As the report says: "vocational education should be considered the core of the entire educational process."

LOCAL SCHOOL PLANNING AND BUDGETING BY ACTIVITY

Allan R. Lichtenberger
U.S. Office of Education

Yesterday we heard Dr. Kaufman discuss Program Planning and Budgeting as "a way of thinking about what we are truly trying to do." And, also, during this conference--one of the best I have ever attended-- Dr. Evans advised us to "work with decision makers on problems they want to discuss." These are only two of the many very important, useful ideas we have been privileged to hear during our three days together.

I call these to attention along with another suggestion that small school systems cannot profit from applications of PPB. When Tom Fox made this latter comment, I'm sure he did not intend to imply that smaller school systems should not be involved in some way in this process which is making a vast difference in American education. Smaller school systems have their problems, too, and they are attempting to do much of importance. They, too, need "a way of thinking about what they are truly trying to do." Just too many of our leaders are products of small school systems to permit us to exclude them from considerations of PPB and its effect on management.

The remarks I intend to make bear little resemblance to those I had prepared three days ago. On Tuesday evening, after a day with you, I worked to repair my notes. Last night I rewrote the entire presentation. Tonight I intend to rest.

First of all, much of what I intended to say has already been said, and much better than I could present it. Furthermore, questions keep arising. These tend to keep me in a kind of fog. If we simply face the fact of this haziness, but keep in mind Jake Kaufman's admonition to look upon PPB as "a way of thinking about what we are truly trying to do," I feel sure we will make progress.

I am enthusiastic about PPB, and I believe you will sense that fact as I say what I have to say.

This morning I want to take two runs at our subject. One we might call a "mode of control or operation"; the other is simply a matter of the files.

What does a school administrator need, this morning, as he comes to his desk? I have asked this question of a number of superintendents. One of them, a man with a computer at his disposal (He calls it his "rig."), and who has moved into his concept of program planning, budgeting, and accounting, gave me this answer:

> "I want my rig and PPB to put before me a something--a display of fundamental information--that 'looks like' my school system."

If I were to stop right here and let you people take this idea and run with it, I think you would have a great deal to work on. "Something--a display--that 'looks like' my school system!"

(Although I will be talking about the superintendent of schools, keep the display concept in mind for all management levels--the principalship, headship of a department, or at any other level where someone is responsible for an operation.)

But think of tomorrow morning, of next week, and next month! The display--it will have changed! Why will it have changed? It changes because of what happens in the school system. This means that the display not only "looks like" the school system; it "acts like" the school system.

Here, again, I could stop talking. With your imagination and creativity you could, I am sure, establish a basis for helping people in our States develop this process we call PPB.

What would be the value in a display that "acts like" a school system? It could certainly help an administrator spot developing problems before they fester. In the same manner, it would offer opportunity to note excellent work, not permitting such effort to go tragically unobserved and unappreciated.

Now take the next step! If a display can be made to "look like" and to "act like" a school system in operation, it can be manipulated to show about what the school system will "look like," and will "act like" next year, the year after that, and the year after that, as far into the future as exceptions can be foreseen and tested innovations can be implemented.

You, of all people, know there is almost no limit to what this means. It is an exciting concept to anyone who has been a school administrator--to anyone in any kind of management responsibility. Whether the application is in strategic planning (long-range), or in management control planning (short-range), the idea of looking into the future and of being ready for the future is indeed exciting.

From here the questions get down to the nitty-gritty. What would appear on a display that "looks like" a school system? If we were to take this question, separate for a few hours, each of us to sketch individual displays, I have an idea that our products would be quite a variation. I am confident, though, that each of them would show clusters--clusters of activities that represent units of behavior in a school system, units of behavior built around purposes, objectives, expected outcomes, something you believe to be worth accomplishing. Call each of these clusters a "program."

A "Program" (I want to bear down on this definition) is a cluster of activities designed to achieve specific, identified, "close-in" objectives relating to a target group of pupils, and reasonably expected to achieve those objectives when performed over a predetermined period of time--say one year or less. I'm talking about "close-in" objectives, not about far-out, majestic objectives, one beyond the realm of feasibility. To measure, for example, the effect of reading ability on the objective of worthy home membership is, I believe, beyond current assessment. Such goals are important, to be sure, but of first consideration must be those objectives we can identify, accomplish, and measure.

The determination of what is to be done to achieve the objectives of a "program" is program planning.

The careful estimation of what the cost will be of doing what is planned to achieve the objectives of a "program" is program budgeting.

The keeping of a record of what is done, of bills paid, and of progress made in the operation of a "program" is program accounting.

Not all "programs" are likely to be the same in all school systems. This means that not all school systems should look alike. Too many of them do. Many of our educational "safeguards,"--accreditation regulations and laws, for example--were frequently designed to make schools and school systems "look like" each other. Good in their time, they are often actual obstacles, now, and they need working over. They inhibit innovation.

Let's talk about the files. Here is where the difficult work of program planning, budgeting, and accounting really begins. It is quite useless for a school system to attempt any kind of PPB until these files are constructed. There are five of them--five basic files. Others can be built, but there must be one with pupil data; one holds information about staff; another is concerned with property; there is a finance file; and, of course, the curriculum file (the one Dale, Dr. Chismore, has talked about). These files may be made up of manually maintained cards in wooden cabinets; they may be decks of punched cards; they may be magnetic tapes or discs. The point is--each of them is a file.

Take the pupil data file! It must hold information about each pupil, basic-unit, standardized, coded items kept up to date. Most of its items are listed in Handbook V, Pupil Accounting for Local and State School Systems, published in 1964.

The same must be true of the staff data file. It should include information about teachers, administrators, supervisors, custodians, clerical workers--all staff (A great many of the items for this file are presented in Handbook IV, Staff Accounting for Local and State School Systems, published in 1965.).

The property file holds coded items about school sites, school buildings, spaces in buildings, equipment--the "things" used in the operation of a school system. Handbook III, Property Accounting for Local and State School Systems, has a great many of these items, standardized. In the curriculum file are standard, coded, basic-unit items about subject-matter areas, subjects, courses, and course content. These are described in Handbook VI (Standard Terminology for Instruction in Local and State School Systems). (That is the manual Dale--Dr. Chismore has talked about.) There is a finance file. It contains items about the money transactions made by the school system. Handbook II (Financial

Accounting for Local and State School Systems)--now quite old--published in 1957--(We are now trying to revise it.), has many of the items for this file.

What is the purpose of the files? They are the basis for information when their items are quickly retrievable, interrelatable, and combinable. (If they are not interrelatable, they simply remain as five separate, somewhat inert files.) They can be used to help answer questions, true, the right questions in the right sequences are of first importance, but it becomes a little tiresome to continue asking questions without getting answers. (Interrelatable files help provide the answers.)

To the extent that the files are interrelatable, they comprise a comprehensive system of information. Believe me! A comprehensive system of educational information is an essential in school system operation and management, today.

What is the direct relationship of the files to program planning, budgeting, and accounting? As valuable as a comprehensive system of educational information is, it has limits. It can do the "workhorse" jobs--payroll, attendance (accounting, running of correlations--but there is an ultimate limit to these kinds of services. They just do not get at the "gut" purposes of education. They do not get at them until the "programs" we have discussed--these things (clusters) that, (in total), "look like" the school system--are identified and the questions asked get at the matter of objectives. This is where those who are concerned can begin to acquire displays of information that "look like" and "act like" the operations for which they are responsible.

I believe it was said, yesterday, that PPB is a process which does not produce solutions. Of course it doesn't! It helps in getting at solutions. Education is a highly sequential process. Sequences both within and among "programs" are much more easily observed, studied, and managed when there is deliberate planning for, budgeting for, and accounting for each "program."

A great many insights are being gained from what we are doing in PPB. For example, when a child who is disadvantaged educationally--say 3 to 5 years--has lost these (important) sequences, it is virtually impossible to fill the gaps. Such children need new sequences--(possibly) sequences of the type discussed by Grant Venn--intensive training to provide certain kinds of skills--enough to achieve some dignity in jobs. I feel that these kinds of insights are just as important as the hard facts we are getting out of PPB.

I wish I had the time to move with you through a simple, easily understood example of planning for, budgeting for, and accounting for a "program." For now, just imagine a group of children who do not read very well (This is not difficult to do.). Set some kind of objective--say to raise levels of reading ability by two years. Then, start backing through the files. Back through the pupil (information) file. Take a look at what is really known about these pupils. Reconsider the objective. The chances are that it will be changed. Back through the staff (information) file. Find the specialists (and teachers) and get them into the process. (If we do not get them into the process we might just as well forget this whole business of PPB.) Find the people who can do the work. (Reconsider the objective.)

Go to the curriculum (information) file. Determine the kinds of organization of subject matter to be put together to get the job done.

Staff and pupils must be in some place. Try the property (information) file; identify suitable spaces; locate equipment; see if it is the kind that will do the job. Reconsider the objective.

What have we done to this point, as we have backed through the files? It is program planning, purely and simply.

Where do we go now? Back through the finance (information) file. Estimate the costs. This is program budgeting. Reconsider the objective. If not enough money is available, the planning must be changed--or the "program" may be dropped. (Below certain levels of support, cost-effectiveness may drop abruptly to zero, and the "program" should be dropped.)

Go into operation, do what is planned, keep records, evaluate. When the predetermined time runs out, the cost of what was done is known.

Was the objective achieved? This is determined through the best measures we know, the best judgment we can apply.

Whatever the gain--it is the value-added. Associated with known costs, it provides a measure of cost-effectiveness. There is a lot of difference between the cost of reading instruction, for example, and the cost of raising the level of reading ability of a target group of pupils a certain amount. Administrators know what I am talking about.

Any capable school finance man can determine with reasonable accuracy what the cost is of any segment of school system operation. (This is not our problem.) Beyond the assessment of costs of what is done, specialists are needed to determine the extent to which objectives are achieved.

There should be close attention to feedback. Once a "program" has completed a cycle, a feedback to re-planning, re-budgeting, re-operating, re-accounting, and re-evaluation in the light of what was learned in the first cycle offers to education one of its great hopes for improvement.

There should be little difficulty in understanding that the "program," or module of activity, geared to objectives, should be small enough to bring attention to each pupil as a unique person. (It has not been too long since we have begun to treat each teacher as a unique person.) It is time for us to do something about treating pupils as unique individuals. This is fundamental. So often there is the complaint that "No one seems to know what a program is!" Think this through in terms of one child, his needs, his attitudes, his understandings, his appreciations, and begin to visualize the kinds of development he needs now, and on into his generation. The essential activities will fall into clusters, in sequences. Then, multiply the child by 2, 6, 10, 20 -- any number. His "programs" ought to be similar to the "programs" for children who are much like him, similar enough so each child can win. A child in a "program" with objectives beyond or below his abilities is in a "program" designed to his failure.

Follow a pupil, today, through the usual routine of a day of secondary school! First, the rush, the pressure, the hurry would exhaust most of us. See how very little one class session relates to the next. Observe how tragically few are the opportunities for the pupil to help in determining his own schedule of learning--or to be creative--or to develop any appreciations--or to be a citizen in the curriculum.

Then, think about some orderly "programs" or modules with expected outcomes that pupils can understand--where there is a relationship among activities--and sequences resulting in individual and group development.

Overdrawn? Do you think so? I don't, (and I do not believe you do, either). Many school administrators are caught in this vise of today's demands and the inertias of custom. They have problems which must be overcome.

What should the direction be? I believe we are setting a direction through this process we call PPB. My contention is that many questions will be answered when school system management owns consistent and frequent displays that "look like" and "act like" the school system in operation. They are "roadmaps" to be used by a management that knows where it is, where it wants to go, and how it is going to get there. They are for a management that is making things happen--not merely presiding. They are for a management aware of what is technologically possible, then capable of making things happen as far as economic feasibility permits.

To implement a new technology into an old way of doing things is wasteful--even disastrous (It has happened over and over again). In PPB we have a tremendous opportunity to overcome a tendency to implement a new idea into an old mode.

Among the opportunities we, in the Office of Education, have to communicate with your respective State education agencies is the Committee on Educational Data Systems--CEDS. If you do not already know the CEDS representative in your agency, get acquainted with him. These CEDS people come in and work with us frequently. They are informed about the handbooks of standard terminology, about data systems, and about records and reports. We need this communication.

I realize, as you do, that there are all kinds of obstacles in the path of development of PPB. But what do we do about them? Are we afraid of them? Let's begin to look at them, subdivide them into their peculiar bits, understand them, and cure them.

It is my feeling that we are at the threshold of (I do not like the word) a breakthrough in education. We are becoming much more concerned about identifying what we are truly trying to do. (I spent my first 50 years in Nebraska; began teaching 40 years ago; have been a teacher, a coach, a superintendent of schools, and have worked in a State department of education. I remember well when we just started school, giving only passing thought to our objectives. I believe we accomplished a great deal of good, but not nearly as much as might have occurred if we had paid much more attention to what we were trying to do.) This business of identifying and understanding objectives is not easy. As I work with people over this country (Pearl River, New York; Skokie, Illinois; Los Angeles--to name a few of their school systems), I find that some of their most frustrating problems are in their efforts to state objectives clearly. There is something sobering and bewildering when we have difficulty in identifying objectives in connection with activities we have had in operation for a long time.

Many of us have more antipathies and biases than we realize. For example, I sensed my own resistance to the idea of treating "program" information mathematically. Still, much of the information about a learning situation has to do with numbers. Numbers of pupils, numbers of hours, test scores, attendance--the idea of numerical data is not new. In fact, the displays that "look like" a school system may turn out to be indexes arrived at through mathematics--and experience.

We are in an exciting time--one of the most exciting ever known in American education--and probably one of the most difficult times. There is much in what Tom Fox said to us: PPB doesn't get us out of trouble; it gets us into trouble because it helps us identify problems--problems we probably should have been dealing with in the past.

Preparing Personnel for Planning, Programming, and Budgeting

William A. Medina, Bureau of Training
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I would like to begin by telling sort of a shaggy dog story that illustrates some of the problems we have had in training personnel in the Federal Government about PPBS. It's not a very funny story, but it does illustrate a point.

It involves the situation during World War II when many individuals were drafted into the service. Men came in with very specific kinds of skills and the military was anxious to make as much utilization of these skills as possible. Upon inducting one individual, the chief petty officer announced, "I'm a master cush maker." So, since he was a master, at least, they assigned him a rating of Cush Maker 1st Class. They put him on a battleship, and the situation became a bit of a scandal on the ship because while everyone was busy, this individual was doing nothing. Not willing to admit that they did not know what a cush maker was, and because they were officers and couldn't ask the enlisted men, the officers decided to devise a scheme to find out what this occupation entailed. They said, "Let's tell him that he's up for a higher rank but that he has to demonstrate his skill in order to make the next rank." They felt that this was a good idea; they called him in and explained the situation to him. The man enthusiastically agreed, walked down into the bowels of the ship, and went into the machine shop; the others all trooped down and followed him. He took a piece of metal from the shelf; he started shaping it, forming it, and cutting it. Soon he came out with a very, very intricate piece of shaped metal. It was really just a beautiful piece of work. It demonstrated an enormous amount of skill with the machine equipment. Then the "cush maker" went up to the top of the ship (you can tell I'm not in the Navy because I'm not using the right words) and said, "Now to demonstrate this thing, we need absolute quiet." The captain of the ship ordered all the engines stopped. They put him in a little boat and they lowered him over the side. Everyone was hanging breathlessly over the side of the ship wondering what he was going to do. He very gently reached over the side of the dinghy, took this piece of metal, and lowered it very gently over the side. It went down, down, and down; and finally, there was a cush at the bottom of the sea. The point that this illustrates is the difference between efficiency and value: This man was obviously very efficient, but he was producing perhaps a valueless product.

Similarly, one of the problems that we have had in dealing with Federal executives and people down the line is that we have been so efficiency-oriented that we really have not stopped very often to ask, "Is what we are doing worthwhile? Does it have any value?" This question comes through very pointedly in our training classes where individuals in the class are arguing in terms of the efficiency with which they are carrying out a certain product. We are trying to get them to look critically at what they produce and say, Is it worth anything? Now, this may seem to be a very simple process, but it isn't, believe me. I'd like to recount the history of our experience to you: it may be instructive either to what you are going through now, or to what you may be going through within the next several years. In other words, we've been there before; perhaps you can profit from some of our mistakes and from some of our successes.

In August of 1965 when the President announced that he was going to have a PPBS System, most people really did not know what a PPBS system was and we at the Civil Service Commission shared that ignorance. At that time there was no training available in the United States about PPBS except the recently established Defense Management System Course at Monterey, California. I think it interesting that although the Defense Department began a system in 1961, their first training course was not established until August of 1965 concurrent with the establishment of PPBS in the civilian agencies. Only one course was offered at that time, but since it was the only facility available, the Defense Department very graciously turned over their next course, the second one, to the civilian agencies. Sixty executives of the civilian agencies went to Monterey for four weeks in October of 1965 just fo find out what PPBS was. And it was in October of 1965 that the Bureau of the Budget came out with its now famous circular 66-3 describing to the civilian agencies that PPBS was and what its requirements were. Now, included in those sixty individuals was an individual from the Civil Service Commission, and I think this showed an enormous amount of foresight for which we can take credit. Not only were there people who were going to be installing the system present, but also attending was someone who would come back and spread the gospel throughout Washington. This "messenger" returned to Washington in November, 1965, and in February of 1966, we initiated our version of the four week Monterey course at the University of Maryland. We have continued to run our three week residential training program at the University of Maryland, and at the University of Virginia and Harvard University as well. Now the Commission offers PPBS courses throughout the United States.

There were some very serious problems at first, with which we had to grapple. We devised a five or six point plan which we have implemented since that time. First, let me describe the components of the plan. There was a need -- an obvious need -- for a very quick, "dirty", you might say, orientation program; we had to acquaint the individuals in Washington with the terminology and the underlying concepts of PPBS. Our problem was complicated by the fact that while Defense, when it ran its programs, was talking about PPBS in an organization, we were talking about it in 22 organizations. There was no such thing, in our case, as the system, because the guidlines from the Bureau of the Budget were quite general and allowed flexibility within the agencies about how they would implement the system. It was not procedurally oriented, it was conceptually oriented; so by necessity we had to be more conceptually oriented and not procedurally oriented. Since there were no procedures at that time, we conducted and we have conducted since that time, two and three day orientations in the Civil Service Commission Auditorium. To date we have trained about 2,000 people in these mass sessions of two and three hundred people at a time. It was quite difficult to do this in one respect because there weren't very many people who were articulate on this subject, but we were very fortunate that knowledgeable people from the Bureau of the Budget (although they were very busy) shared their time with us. The point I'm trying to make is that although there were many other priorities in terms of getting the job done, training took a very high priority right from the beginning, and very busy people took time from their schedules to share what knowledge they had. We had some very high officials -- including Assistant Directors from the Bureau of the Budget and other executives spending two and three hours with a group of students because they thought it was important. I think they were right.

We ran an intensive three week residential training program, and I'll come back to that a little later on; let me skip by that now. We began to plan right from the beginning long term educational training programs at universities in much more depth. As early as February of 1966 we were planning to send individuals to the universities to learn more about the conceptual underpinnings of PPBS in areas of micro economics, quantitative analyses, and like subjects. In the first year we made arrangements with 7 universities throughout the country for 79 students -- picked rather hurriedly -- for one academic year. These universities were Harvard, Princeton, the University of Maryland, Carnegie Tech., the University of Chicago, the University of Wisconsin, and Stanford. In the second year of that program -- this year, we have 92 students. Chicago has since dropped out of the program, and we have added M.I.T., and the University of California at Irvine, and with the Rand Corporation. The students at Irvine are not only in the universities doing academic work, but they also spend part of their time doing analytic work under the supervision of the Rand Corporation. It is a rather unique program. We are now selecting the students for the third year program, and they will enter into the universities this coming fall. Thus, we are taking not only a short range view; intensive orientation such as the three week course (it's a sophisticated orientation program but we don't turn out experts in three weeks), but also we are implementing a long range program where individuals receive intensive analytic training at universities. We have been very fortunate to have the National Institute of Public Affairs carrying the major burden of the administration of this program.

Now, in all of these efforts, two concepts must be kept in mind. We are talking about training the users of analysis as well as the producers of analysis. The shorter programs are oriented more towards the users of analysis; the longer programs are oriented toward the producers of analysis. Consequently, in our selection of candidates for the program, we have tended to choose younger people who will be analysts and who will return with a commitment to their agencies for a period of time in order to actually utilize the skills. We have done some evaluation of this program already in the form of a preliminary evaluation, and we have more in-depth evaluations underway right now. There's a man from our staff at M.I.T. now who is doing an evaluation of this program as one of his research projects at the university. When he returns he will begin to assume responsibility for operating this program. Our preliminary evaluation of this program indicates that what the students learned at the universities was useful on the job; through questionnaires, we asked individuals, after they'd been back on the job for some period of time of the first year, if their courses were applicable to their present jobs. The answere were affirmative. We also found a very high utilization rate of these individuals in analytic roles in the agencies. This is an expensive program, probably 20-25 thousand dollars per man, considering the salary, per diem, relocation costs, tuition, etc., but the agencies are getting a lot back for their investments. We have done some evaluation of individuals back on the job three months and six months on the job; these people in the agencies are now performing the analysis. So we are reasonably pleased with this program. We still do have some problems, however. There is the perennial problem of marrying theory with knowledge that can be used immediately in getting a job done. Some of our students are confused with Ph.Ds. We are trying to produce some people with some analytic skills who can come back to the job and do effective work; if they compare well with Ph.D. students, that is fine, but this is not specifically our concern.

The fourth part of our plan was the construction of some specialized short courses, which we identified early but did not begin to build until later on, for we had a very small staff. As the staff increased slightly over a period of time, and as the great demand for quick orientation diminished somewhat we have been able to move into 'second generation' PPBS courses. An example is that the Cost Benefit Workship, a one-week program which focuses specifically on how to do cost benefit analysis. We have trained approximately 250 people in this program. In other words, we have expanded individual components of the three-week course into more intensive courses in Civil Service Commission training rooms, such as a three-day course on building information systems for PPBS.

Allow me to make a point about the qualifications of the people administering this project. We found a contractor who claimed to have a lot of experience in PPBS information. He ran two programs for us, but we were dissatisfied with those programs. This is another lesson: many people claim to know much, but as we gain in experience and knowledge we discover otherwise. We have taken responsibility for the program ourselves, and are doing a better job than the so-called 'experienced' contractor. I do not mean to castigate all contractors; however, our cost benefit course was developed for us by a contractor, and it is a terrific program. The point is that careful attention is essential - you cannot give a guy a blank check and say, "Do something for me." You must be able to sit there and monitor him. I was a history major in college; I am working in political science now for my doctorate. The man who structured all these programs graduated from San Francisco State with a major in drama, and he had never been trained in Economics either. This is fairly typical of our staff. It is desirable to have at least one economist on your staff; but in his absence, if you have people who are willing to work hard and educate themselves, substantial progress can still be made. An indication of this is that this gentleman, Chet Wright, who is now the director of the Center with which I was formerly associated, recently gave a lecture on the economics of PPBS at a university for its economics faculty. This is what can happen in two years.

We have now started to build PPBS components into regular management training programs run in the Civil Service Commission. We operate two executive seminar centers - one at King Point, Long Island; one at

Berkeley, California. These are two-week residential programs. We have built PPBS modules into many of these programs. In addition a wide variety of management training programs for first line supervisors on up are offered across the nation. PPBS components are built into many of these. Some of them are just three hours, but we are getting the word down almost to the lowest supervisory level, even if it is only orientation. In addition to this - and this is my sixth point -- under this plan we have stimulated other agencies to do training on their own, for the Civil Service Commission cannot accommodate everyone needing training. Many of the agencies did sponsor from a half-day to one-day orientation programs, sometimes using our resources, sometimes getting very specific programs about PPBS as it related to their own agencies. And agencies in Washington (I don't have the exact figures with me) have trained literally thousands of individuals in these programs; there have been thousands of man hours expended in orienting individuals at the agency level about PPBS. So what I am really trying to say to you is that in the implementation of PPBS there is a necessity to reach a large number of people. There should be at least understanding of what is going on, perhaps not acceptance - that may be too much to ask -- but understanding, because we find that much of the resistance comes from ignorance of the system. Many people 'don't know what it is but they're agin it.' We have adopted the attitude that just pure knowledge does much to overcome resistance to this system: just letting people know what it is is very, very impoprtant.

Now I would like to talk a little bit more about our "bread and butter course", our three-week residential training program. I mean to stress the word "residential" because we have insisted that our students live in during the program. We have a facility at the University of Maryland: the adult education center where the students eat, live, sleep and study in the same building. We rent this facility, and we draw upon faculty members from the University of Maryland, supplementing this faculty with our own people and with people from the agencies. Thus there is not only an academic conceptual flavor, but there is also the flavor of the practioneer who is actually using the information in the agency. In the first program, even though Chet and I had both been through four weeks of training, we knew so much about PPBS that we shared a one-hour presentation together. That was the full extent of our knowledge. He took half an hour and I took half an hour. Today our staff teaches one-third of the three week course; I mention this because if you have some training people who are smart and willing to work hard, they can acquire the knowledge that is necessary to teach it to other people. They may not be PH.D. econometricians, but they may be capable of translating into very practical terms information that can be used by a program manager.

We found early in our training that many of the people came to the course reluctantly. For a variety of reasons, they did not want to live in, -- you know, they live ten minutes from the university, couldn't they live home and come to the course during the day? We said no, if you don't want to stay here, go away; we have a line of people 50 deep who want to stay out here. We did this for several reasons. One reason is that there is no way to learn about PPBS simply by listening;

you have just got to dig in and get your elbows dirty with the literature on the subject. I do not know how you live, but after I get home in the evening, with my three children, by the time I can sit down to read anything, it's nine o'clock, and if I'm really highly motivated I won't fall asleep until ten. We were assigning three or four hours of reading per night to these individuals. They would finish class at five, rest, have dinner at six thirty, and they would go back to their rooms and put/in four hours of reading in the evening. Case work studies and getting together with small groups were included. We have questioned every group that we have put through this, and, at the end of three weeks, they all agreed that it was worth while living in. Many of the individuals compare it to Boot Camp. It is a rough day; it is a good 15 hour day that we put these people through at the university. But they do learn, and significantly, they do change their attitudes.

I can remember an individual who came into our first program. He was a GS-18. He came only because his boss insisted he attend. Surprisingly, he stayed the full three weeks. He now gives speeches around Washington extolling PPBS. The point is, that very early in the training (I want to make this point because things have changed since then) our instructors and our staff were literally pinned to the blackboards daily by students who felt very strongly that it was bad -- "they didn't know what it was but it was bad." We found that at the end of the first week a very significant attitude change took place; once they had gotten over their initial trauma they said, "O.K. I believe now; now tell me how to do it." So we approached the problem very straightforwardly. We told them that we were not there to make them believers in PPBS; we just wanted them to have open minds; we wanted them to at least listen for three weeks. We struck out any attempts to talk about the problems of change. We just gave people some facts and let them make up their own minds. This policy has continued with success: we have found that we have been able to make significant attitude changes in the individuals to the point at which we have considerably modified the structure of the program. We jump into the subject today much more quickly, and more in depth, because we find today that more and more of our students arrive with a positive attitude. As people have peripheral contact with the idea in the agencies, they develop more positive attitudes; they begin to accept. We do get more done now in our training because we do not have to worry about violent manifestations of protest, although a few still filter in.

There was another situation, which can be relevant to your apprehensions. When we went to the Defense Department's training course, it bacame very evident to us that none of the materials developed for the Defense Department training course were relevant to the civilian agencies. The reason is that there was a strong feeling in Washington then that PPBS is good for the Defense Department, but is no good in civilian agencies, of my agency, such as the Office of Education, because they have qualifiable outputs, and we do not. This was a very strong attitudinal feeling in Washington at that time. One cannot, it was said, measure aspects dealing with people; you can measure tanks and planes and all these kinds of things, but you cannot measure the the effectiveness of programs that deal with people. The Defense materials dealt with Defense related problems, such as weapons systems analysis; but we felt that if we exposed our students to these materials (which incidentally were very good) and even if all of the principles were there, that we would not convince our students of their validity because of their attitudinal hang-ups. So we hastily constructed some materials using civilian agency examples. Since that time we have developed a sophisticated series of teaching cases centered around real live problems, actual cases involving civilian applications of PPBS. We contracted with a firm in Cambridge and they developed for us under contract a very sophisticated set of teaching materials. The firm put permanent people here in Washington, and, with the assistance of the Bureau of the Budget, we gathered good data from the agencies to make teaching cases. We now use these cases in our training.

Why did we do all this? The average program manager, the average person in the Government is a pragmatist: the theory is very interesting, but how does it apply to a real live problem?. So we have constructed a course combining a certain amount of theory and a certain amount of application of that theory in a teaching case to come to grips with this problem. It is a legitimate concern of the manager and of the practitioner to realize the relationship between the theory and the practice. These cases are very good, and are available through the Intercollegiate Case Clearing House at the Harvard Business School, Cambridge, Massachusetts. All you have to do if you wish to acquire them, is write them a letter and request a list of cases and the price list; they are sold at very low cost to anybody wanting to buy them in any quantity. For teaching purposes the cases are helpful. An interesting fact is that universities are now using them in their regular graduate school program. In Business Administration, for example, at the Harvard Business School today, three of the cases are now an intergral part of the curriculum. People in the universities are becoming aware of this vehicle for teaching how to analyze complex problems involving public policy.

Well, let me wrap this up in a few minutes because I am sure you have some questions. What kinds of people do you need to implement a PPBS system? You need all types. As I have demonstrated, we think that a training component in PPBS is extremely necessary, and it can be approached such as we've approached it: we are encouraging the agencies to run their own programs -- I think HEW today has one of the most imaginative ones in Washington; they have an on-the-job training program at the Assistant Secretary level, and they are taking people out of the various Bureaus and agencies of HEW, and putting them in a program where they are actually doing analysis under the supervision of a professional analyst. There are all kinds of ways of slicing this, and I think they are all necessary. But the point is that you really cannot operate unless you get the word out, and getting the word out involves meetings, involves people reading, involves formal training courses; and it is expensive to do this. I do not know how you solve this problem at your level. We not only have done this in Washington but we now have four Financial Management and PPBS Training Institutes nationally under the supervision of our regional offices. We now have them in Philadelphia, Atlanta, St. Louis, and San Francisco; they are multi-regional training institutes, and they blanket the whole country. In fact, training is being done in Alaska and Hawaii as well. I might add, just parenthetically, that PPBS is quite persuasive in terms of what we know is going on at the state and local level. There is the 5-5-5 project funded by the Ford Foundation involving the experimental use of PPBS in five states, five counties and five cities. This is operated through the State and Local Finance Project at George Washington University. Also, from the contacts we have with agency people who wish to get into our training program, we know that PPBS is quite widespread. In addition, we have trained a number individuals from foreign governments. (It might be interesting for you to know that Israel has a very fine PPBS system.) We train people from the Philippines, from Europe, from Serra Leone, from the United Nations, from Latin America. Indeed, there is world wide interest in PPBS.

What kinds of people will you need, well - let me talk about producers as opposed to users. I think users need to understand it and let us leave it at that. But let us talk about producers of analyses. One of the facts we found out in our three week training is that a lot of people who might have had some sort of quantitative training or economics generally had it a long time ago, and so we really had to start all over again. We had to assume that they did not know anything because there were a lot of people who either did not learn it very well, or had forgotten it through lack of use. Also economics had changed radically in the last ten years or so; it has become much more micro-oriented rather than macro-oriented, and it has become much more quantitatively-oriented. What I am saying is that you need people who are flexible; you need people who are smart. We found for example, in our one-year program, that at least half of our best students in the program had never had any formal academic background in quantitative analysis or economics -- and they were among our best students. Why? They were smart; they had an aptitude for analysis, and very quickly they were able to pick up many of these skills. We have used various instruments to measure this; we have looked at graduate record exam scores; we have used the Miller analogies tests for these individuals to determine whether they have aptitude or not.

One of the items that I think is extremely important for a good analyst is to have program knowledge. And I think that those of you who are thinking that "Well, I'll just go out to the university and I'll start grabbing a lot of individuals off the university campuses with recent experience," ought to consider this point. This is not to say that you should not hire those people -- I think the people who are coming out of the schools now are extremely well qualified for this kind of work, particularly some of the people from out of the better business schools for example. Nevertheless, they do not have one important ingredient that allows them to hit the floor running - that is program knowledge. And this is why I would encourage you to take people already on your staff now who have good program knowledge, who are analystically oriented in some demonstrable way. I think it is worth while to train these people in performing analysis because they do have the advantage of knowing the program. You just cannot do analysis in the abstract, you must know what the problems of the program are.

I will make one more point: what kind of economics have we been teaching these people? Let me illustrate it with just a short story. One of our students came back -- the students normally go home on the weekends during our three-week program -- rather chagrined one Monday morning. He had gone home, and was telling his wife and family about all the sophisticated economics that he was learning. Much to his horror, he discovered that his daughter, a 17 year-old college freshman, was using the same book, learning the same things. What we were talking about was basically very elementary principles of economics. We found that in the training, although you could talk about things like sunk costs and opportunity costs, which you will find in the first few chapters of an economics book, and get the idea across in a relatively short period, our students had great difficulty applying it to their own programs. It was understood conceptually and intellectually; but the problem was the practical application of the principle to a specific program. This is where the teaching cases are useful: this is a no-penalty situation which the student can apply to somebody else. The ultimate effects and value of any of this training is really its use on the job. We are completing a rather massive evaluation of our three-week program. We sent out over six hundred questionnaires, and received back over five hundred of them. The reports showed, at least in terms of the perceptions of the individuals about what they learned, that it in fact did influence their behavior, and they are in fact using that conceptual framework -- a way of thinking back on the job. What we are training people in is a way of thinking not a bag full of techniques

Are there any questions?

Taxonomy of Occupational Titles and Instructional Programs

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In discussing this new tool for relating vocational education instructional programs to the world of work, we must first review the background leading to its evolvement. In recent years, there has been considerable emphasis on the concept that human resources are vital to the growth and well-being of our society. In our job-oriented milieu we now acknowledge more universally the worth of the worker-citizen and discard the idea of the expendable worker portrayed by Upton Sinclair in The Jungle 63 years ago. This belief is incorporated in the manpower policy of this country which advocates not only the preparation of a qualified labor force necessary for economic growth but also emphasizes the development of the individual's capacities so that he may benefit from, participate in, and adjust to the changes in the economy. In order to implement this policy the people of this country have turned to the educational establishment for assistance because it is this institution that can furnish the services and develop the human resources necessary for the successful attainment of the manpower policy goals.

The Vocational Education Act of 1963 reflects the dual concern for the economic aspect of education and for the preparation of the individual for the requirements of society. The Act indicates that vocational education programs are intended for "persons of all ages in all communities" and that such offerings must be "realistic in the light of actual and anticipated opportunities for gainful employment and must be suited to their needs, interests, and abilities to benefit from such training."

In addition, the Act provides that vocational and technical education may now include within its scope all occupations which do not require a baccalaureate degree. This means that we are concerned with about 90 percent of the occupations in America. The challenge facing vocational educators, therefore, becomes quite obvious. And the need arises to develop tools and data to assist vocational educators in planning for and gauging the effectiveness of their programs in relation to the manpower and occupational demands of the economy.

To help satisfy this need, the Division of Vocational and Technical Education has been working closely with the National Center for Educational Statistics and with the Bureau of Employment Security of the U.S. Department of Labor in the drafting of two documents. One of these has been described to you by Dr. Chismore. The second one links vocational and technical programs to the occupations contained in the Dictionary of Occupational Titles. This second document, we hope, will aid those concerned with educational planning for manpower needs to more accurately measure the contribution of public vocational education to the supply of manpower in this country. The intent of this document is to relate vocational education offerings to occupations on the basis of their education and training requirements in one uniform system. And I would like to stress the last point. A few years ago we had no uniform way of codifying and classifying data about vocational education programs. The

Standard Industrial Classification Manual was used in one occupational area, the Dictionary of Occupational Titles was used by another, and the other occupational areas had no systematic way of recording such data.

As I see it, these two pioneering documents will some day have equal status with the Dictionary of Occupational Titles, the Bureau of Census' Index of Occupations and Industries, and the Standard Industrial Classification Manual. And as has been indicated, there is ample evidence that there is a dire need for these new documents.

At this point it would be well to recall certain other vocational educational legislative requirements. First, each State wishing to participate in Federally financed programs is required to submit to the U.S. Office of Education a proposed plan of activities for the coming year. This plan must include an analysis of the current and projected manpower and employment needs and opportunities in the State. States also are required to provide an assessment of their capacity to offer meaningful occupational and vocational education and training and to include plans for the future.

Secondly, each State must submit an annual statistical and descriptive report containing financial, staff, enrollment, and other data. Thirdly, in order to further assure that vocational education programs will mesh with manpower skill needs nationally and locally, it is now required that a close relationship be established between the U.S. Employment Service of the U.S. Department of Labor and the U.S. Office of Education, of the Department of Health, Education, and Welfare, and between the State public employment services and State vocational education agencies. Agreements in the State plans enable vocational education planners to have access to or arrange for obtaining data about manpower trends and occupational requirements.

In planning educational programs for manpower needs, there are three basic factors that should be kept in mind:

1. the occupational distribution and trends of the labor force;
2. the work to be performed;
3. the education and training needed by the worker for successful performance.

Available labor force data and job analysis information, although leaving much to be desired, are fairly good, and the techniques for gathering these data are constantly being improved. What we have been lacking are data about the learning force which is related to occupations.

It is our hope that the second document will provide the missing data. The document will consist of two parts. These two parts will be preceded by an introductory and explanatory section. The first part will contain a four-column listing showing educational instructional programs derived from the Standard Terminology for Instruction in Local and State School Systems related to codes and titles from the Dictionary of Occupational Titles. At the present time there are approximately 350 programs related to about 2,000 occupational titles. The second part also contains a four-column listing but it's the reverse; that is, the DOT codes and titles are related to the pertinent vocational education programs. The document is intended to assist vocational educators and manpower specialists in gathering and relating data about the job market and vocational and technical education programs.

The Office of Education structure is a flexible one and can be expanded or contracted if necessary. It should be noted, however, that specifics can always be aggregated but that an aggregate can't always be broken down into specifics. For example, 14.02, Business Data Processing Systems which now appears in the Handbook, includes 14.0201 Computer and Console Operator Programs, 14.0202 Peripheral Equipment Operator Programs, 14.0203 Programmers, and 14.0204 Systems Analysts. Data with regard to these latter programs at the 6-digit level certainly would be more significant than data at the 4-digit level. Yet, all of these could be added to give us a total figure of business data processing programs at a state or national level, if this is what we want.

An additional feature is the opportunity to record new programs not now included in the classification structure. These may be entered in the groups ending with the digits, "99." These may turn out to be probably the most important sections of the structure because it is from these compartments that we may be able to ascertain if we are responding to the pressures of technological and social change.

Also, we will now be able to relate data on enrollments and completions to manpower trends and requirements. Using the data collected, it may become quite possible to match the output of vocational education institutions with occupations for which workers are in short supply.

At this point I want to call to your attention a memorandum issued by Dr. Venn to the Regional Assistant Commissioners for the Office of Education with regard to training sessions in use of the Dictionary of Occupational Titles. The following paragraph will give you the gist of the memo.

> "One of the documents used in disseminating occupational information and in gathering job market information by various State employment security agencies is the Dictionary of Occupational Titles. In order that vocational educators may better relate vocational and technical instructional programs to the manpower needs of the economy, it is felt that a better understanding of the purposes and uses of this document would be useful to them. It is suggested, therefore, that you communicate with the U.S. Employment Service Regional Directors who are concerned with the States in your Region to arrange for a joint meeting to discuss procedures which may be needed to institute training sessions of State vocational education personnel and subsequent sessions in the State of local personnel in the use of this publication. Such training is especially important in view of the fact that the Division of Vocational and Technical Education of this Bureau and the U.S. Employment Service are

> preparing a joint document showing the relationship of vocational-technical instructional programs to the Dictionary of Occupational Titles as a basic aid for reporting certain annual data on instructional programs and reporting occupational data in the projected program of activities."

There are other uses to which this classification system may be put. For example, the relationship table may turn out to be a useful counseling tool because it will relate education to the world of work. It will indicate to students and teachers, the occupations or range of occupations to which students will be exposed as a result of taking certain educational programs. In this connection, we are considering adding to the document worker characteristics, such as aptitudes, interests and physical attributes which are necessary for successful job performance. Another use to which the system may be put is that of a cataloging device for curriculum materials. As a matter of fact, this is being tried out in our Division right now. We are using the code structure to classify and sort out curricular material from all over the country.

We hope that this tool will satisfy the fundamental need for information on education allied to information about jobs and labor market trends, and thus aid us to respond more quickly to technological and other changes. In short, we anticipate that data obtained by the use of this tool will provide a basis for policy development and for the subsequent adaptation of programs to the changing needs of our economy and society.